Ontario's Changing Population
Volume 2

Directions and Impact of
Future Change 1971-2001

A Background Report
March 1976

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Ontario's Changing Population Volume 2

Ministry of Treasury, Economics
and Intergovernmental Affairs

Regional Planning Branch

ONTARIO'S CHANGING POPULATION
VOLUME II
DIRECTIONS AND IMPACT
OF FUTURE CHANGE - 1971-2001

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PREFACE

This report is part of a series of working papers prepared by the Regional Planning Branch in support of urban and regional planning in Ontario. As the second of a three-volume study on population in Ontario, this document deals with the direction of population change in the province during the next three decades--its size, distribution, and composition--together with an assessment of the population impact resulting from some of the large regional projects under way. It should be emphasized, however, that the material contained here should not be construed as government policies or intended actions. Rather, the main intent of this and a subsequent report is to clarify a number of development issues and to serve as a discussion basis for matters relating to population.

Many people contributed to the completion of this undertaking. Foremost are Mr. E. H. Suichies and Mr. N. H. Richardson, the Director and the Chief Planner of this Branch respectively, whose continuing support made the completion of this undertaking possible. Other contributors include Mr. P. Ardagh, a former summer student with the Regional Planning Branch, who calibrated the impact model, Mr. C. Tappenden and his statistical staff, Mr. U. Roose and his cartographic staff, Mrs. P. Telford, Mr. C. Bigenwald, Mrs. E. Samery, Mrs. Anne Carruthers, Mrs. Z. Jauer, Miss J. Hoyle and Miss L. Pridham. Professor G. Hodge of Queen's University conducted an appraisal of the forecasts as well as undertaking a review of the draft report. We would also like to thank especially Mr. R. Kogler of the Economic Analysis Branch, who provided us with a fair amount of the projection information, and Mr. J. Jutlah and Mrs. E. Ferik of the Policy Planning Branch of this Ministry.

Cheuk Wong

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CHAPTER I: PERSPECTIVE ON FUTURE POPULATION

A. SCOPE OF THE STUDY

> "Time", said St. Augustine, "is a three-fold present: the present as we experience it, the past as a present memory, and the future as a present expectation." By that criterion, the world of the year 2000 has already arrived, for in the decisions we make now, in the way we design our environment and thus sketch the lines of constraints, the future is committed. Just as the gridiron pattern of city streets in the nineteenth century shaped the linear growth of cities in the twentieth, so the new networks of radial highways, the location of new towns, and the like will frame the tectonics of the twenty-first century.*

Volume I of this study provided an over-all view of how various demographic factors have influenced the pace and pattern of population change in different parts of the province during the last three decades. In the present volume, we will attempt to sketch what is likely to happen during the final three decades of this century if these demographic forces continue to operate in similar fashion. To a large measure, the 2001 trend picture has already taken shape, for, in St. Augustine's phrase, it is already "a present expectation." This is not to say that the actual future, the year 2001, will not depart from the projection. The main point is, as the American Academy's Commission on the Year 2000 suggested, that the future is not an overarching leap into the distance; it begins in the present.** The momentum of various forces which are already operating, together with many decisions already made, have in many ways set the basic tone, for the foreseeable future. In our complex society,

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*Bell, D., "The Year 2000 - The Trajectory of an Idea," Daedalus, 1967.
**Ibid.

the future is influenced by a number of social and economic forces which are not changed by a flick of the finger. Any changes in the trend picture, while possible, may take a very long time to emerge. On the other hand, the projected trends should not be looked upon so much as prophecies or assertions about the future as aids for decisions, for anticipating future problems, and, more appropriately, as a benchmark for devising alternative policies if necessary.

Up to now, a number of population projections have been made. Unfortunately, most of them were completed at different times, based upon different assumptions, and derived for different levels of geographical detail. After reviewing various available projections and their assumptions, the first half of this volume of the report will attempt to estimate the most probable 2001 trends at a level of detail which will satisfy most planning and development needs.

The second half of this volume concerns primarily the effect of some of the major development decisions made recently on the trend of population distribution in Ontario. For some time now, through a variety of means, the provincial government has been trying to alter the development trend in Ontario. The pace of intervention has quickened since the activation of the Design for Development policy. New undertakings added to previous programs include special development proposals (e.g., the North Simcoe and Northumberland Task Forces, the

Northwestern Ontario Development Strategy), new towns (e.g., North Pickering, Townsend), and legislation (e.g., the Planning and Development Act). At the same time, both private corporations and quasi-public agencies have proposed--and in some cases are committed to--a number of "extraordinary development projects." Some of these projects are already under construction, or construction is about to begin. Most of them are located in central and southwestern Ontario, and many people fear that these projects will eventually lead to extensive urbanization in these parts of the province. Others are concerned about the probable adverse impact of these projects on eastern and northern Ontario, in that they may accentuate migration loss from these areas or pre-empt the prospects for their further industrialization. The result of this analysis would provide at least some insight, partial though it may be, into the effects of these development projects on the population trends to the year 2001.

B. SUMMARY OF MAJOR FINDINGS

Geographical Pattern of the Future Population*

There will be continuous population growth in Ontario over the next 30 years. The province will add close to 4 million people, which is roughly the same increase as that which took place between 1941-1971. However, the rate of change during the next 30 years will be much lower--1.4% in 1971-2001 versus 2.4% in 1941-1971.

*Central Ontario is the only one of Ontario's planning regions which is expected to continue to increase its share of the provincial population, while the share of all other regions will decline. In 1971, the six major Census Metropolitan Areas (CMA) held about 60% of the total provincial population.** But they are expected to gain between 75% (under Assumption A) and 80% (under Assumption B) of the total growth in the province during the next 30 years.*

During the next three decades, about half of the total population growth in the province will be comprised of natural increase, with the remaining half derived from external migration. For some metropolitan areas (e.g.,

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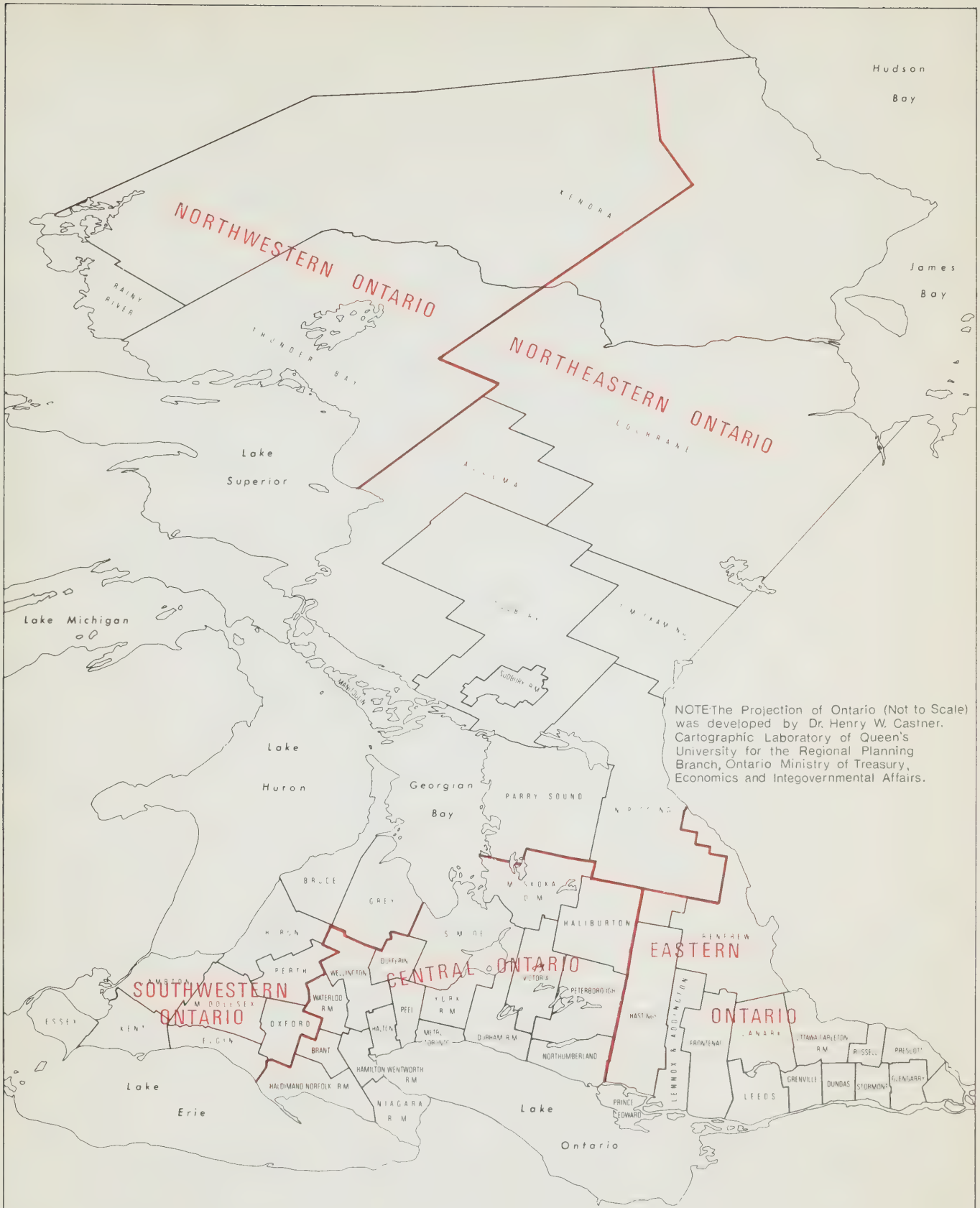
*For a description of the counties, planning regions, Census Metropolitan Areas (CMA) and the COLUC (Central Ontario Lakeshore Urban Complex) area, see Figures 1, 2 and 3. For further details of the COLUC area, see Central Ontario Lakeshore Urban Complex Task Force, A report to the Advisory Committee on Urban and Regional Affairs, Ontario, 1974. Note that the County of Durham is defined in this report by its original county boundaries, not by the boundaries of the new regional municipality. The COLUC area used in this report refers to the six COLUC counties (Wentworth, Halton, Peel, York, Ontario and Durham). This area is not precisely the same as the COLUC area used in the Task Force Report, but the difference between the two areas is very small: in 1971, the difference in population was less than 1%.

**The six CMA's are Toronto, Hamilton, Ottawa, London, Kitchener/Waterloo, and Windsor.



NOTE: The Projection of Ontario (Not to Scale) was developed by Dr. Henry W. Castner, Cartographic Laboratory of Queen's University for the Regional Planning Branch, Ontario Ministry of Treasury, Economics and Intergovernmental Affairs.

FIGURE 1
COUNTIES AND PLANNING REGIONS
OF ONTARIO

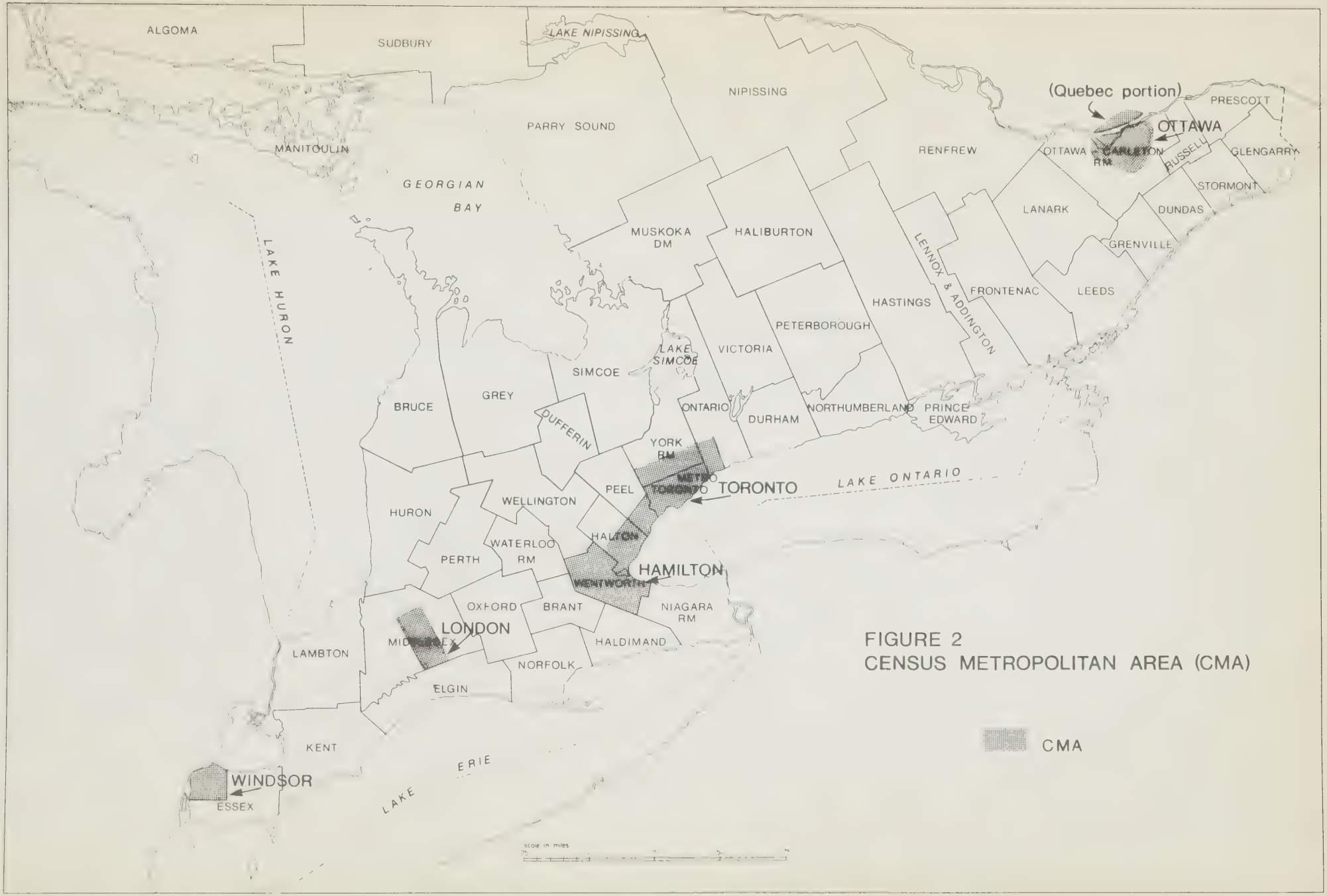


FIGURE 2
CENSUS METROPOLITAN AREA (CMA)

FIGURE 3:
COLUC TASK FORCE STUDY AREA AND THE SIX CORRESPONDING COUNTIES

NOTE The six corresponding counties are Durham Ontario York Peel Halton and Waterloo

Ottawa and COLUC), the proportion of growth due to the migration effect will be as high as 70%-80% during 1986-2001. However, a number of the counties in the province, mainly those in northern and eastern Ontario, will continue to lose people through migration.

Apart from COLUC and the major metropolitan areas (except Hamilton), the growth rate of the rest of the province is expected to be only half of the provincial average. However, in absolute terms, the population in the rural areas and the small centres (population less than 1000) as a whole will continue to grow. During the next 30 years, about 1/2 million people will be added to the townships and small centres in southern Ontario (equivalent to about 50% increase from 1971).

In some parts of the COLUC area (e.g., Durham and Ontario) some of the population targets given in the COLUC task force report are equivalent to about 80% higher than the trend projection.

Urban System

According to the trends, the 2001 urban system in southern Ontario outside the COLUC area will not be significantly different from what it is now. By contrast, inside COLUC, the urban system will probably take on a new perspective.

By 2001, there will probably be 8 centres in southern Ontario with population exceeding half a million people and 7 centres between 100,000 and 200,000 people. However, there is no centre east of Oshawa, other than Ottawa, with a population exceeding 100,000

*even by 2001.**

Of the various class of centres, only those which exceed a population of one million, together with the category containing the townships and centres with a population less than 1,000, are expected to decline in the share of the provincial population.

Age Composition

The population of Ontario as a whole will be somewhat older in the future than it has been in the recent past. In fact, in certain parts of the province, there will be an actual reduction in the number of people in the younger age groups, 0 to 24.

On the other hand, differences in age structure in various parts of the province will further decrease. Further, the differences in age structure between slow-growth regions and fast-growing regions will be less of a development issue in the future.

Labour Force

The labour force will continue to grow faster than the population, but the rate of increase will slow down considerably, especially after 1986.

The bulk of the labour force growth will come from an increase in the size of the working age population rather than a higher participation rate. The increase in participation rate will be most pronounced among women: the female participation rate is expected to increase from about 28% of the total in 1961 to 40% in 2001. Further, the labour force as a whole is likely to be slightly older in the future.

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*Kingston with its surrounding areas are likely to approach that size.

The labour force in the metropolitan areas will grow at a much higher rate than in the areas beyond, a result of higher participation rate and population expansion.

Impact of Large Regional Projects

The population resulting from the three developments--the Nanticoke complex, Bruce Hydro, and Petrosar in Sarnia--will amount to a total of about 53,000 by 1986 and about 120,000 by 2001. Even if we assume the entire 120,000 people as extra growth, that is, over and above the projected trend, the amount only represents an additional 6% population increase in the entire southwestern part of the province west of the COLUC area during the next thirty years. Thus, from the standpoint of the over-all development impact in southwestern Ontario, the effect will not be as substantial as one might imagine.*

Except for the fact that a new town will be created near Jarvis (Townsend) and may eventually reach a size of about 80,000 (70,000 by 2001), the three projects discussed above will not alter the rest of the projected pattern of urban population based on trends; however, the developmental impact on a number of the smaller centres in the Nanticoke and Bruce areas could be quite substantial.

Where the labour force will be drawn from will be influenced by a number of factors, including policy decisions by the government and the companies concerned, recruitment options, immigration policy, timing of the new town, the nature of local development policies in the surrounding areas, etc. However, it is unlikely the projects will have any noticeable effect on the

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*This is equivalent to about 5% of the increase in the COLUC area.

levels of trend population in other parts of the province.

Beyond 2001

*It is unlikely that natural increase will approach zero before 2001, even if the effect of migration is excluded. If the fertility rate stabilizes at a value of 1.98 beyond 2001 and net migration is at a level of 50,000 per year, by about 2060 the provincial population will reach around 15 million (i.e., the maximum). In terms of the COLUC area, it would mean a maximum population of slightly over 7 million, which is well within the limits when the urban system reaches its maturity as called for by the COLUC Task Force Report.**

*The Central Ontario Lakeshore Urban Complex (COLUC), a Report, op. cit.

CHAPTER II: DIRECTION OF FUTURE POPULATION CHANGE

A. AN ARRAY OF POSSIBILITIES

At present, five sets of population projections are available. As seen from Table 1, all the projections use the component method or some modified form of it. Essentially, the component approach involves analyzing and projecting each component of population change--fertility, mortality, and migration rates (or coefficients) for each of the areas concerned (e.g., province, county etc.). The rates of coefficients are then applied to the population of some base year (usually the most recent census year) to arrive at the projected population by age and sex.* However, in the forecast by Lithwick, the component method estimate was supplemented by another method, the stock approach. This method forecasts primarily the gross provincial output and the output per worker for each of the major economic sectors. The resultant labour force is then expanded into equivalent population by means of the expected labour force participation rates.

Of the three variables that are used in the component method, traditionally, the death rate has been the most stable and therefore presents the least problem to forecast. In contrast, there have been some major fluctuations in the fertility rate in the past few decades in Ontario. After a

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*For a detailed description of the component approach, see Chapin, F. S., Urban Land Use Planning, 2nd Edition, Urbana, University of Illinois Press, 1965; Goodman, W. I., and Freund, E. C., Ed., Principle and Practice of Urban Planning, International City Manager's Association, 1968; and Technical Report on Population Projections for Canada and the Province, 1972 - 2001, Statistics Canada, Information Canada, Ottawa, 1975.

TABLE 1

DESCRIPTION OF ALTERNATIVE PROJECTIONS FOR ONTARIO

PROJECTION	PREPARATION DATE	PROJECTION TARGET DATE	GEOGRAPHICAL UNITS	TECHNIQUES EMPLOYED
SYSTEM RESEARCH[1] GROUP (SRG)	1970	1986 2001	Nation, Province and Metropolitan Centres	Component Method
CENTRAL MORTGAGE[2] & HOUSING CORPORATION (CMHC)	1971	1986	Nation, Province and Metropolitan Centres	Component Method for Nation and Share Method for Other Areas
LITHWICK ET AL[3]	1971	1986 1991 2001	Metropolitan Centres	Stock Approach
		1986 2001	"	Flow Approach (very similar to Component Method)
ONTARIO[4] GOVERNMENT (EAB)	1973	1976 1981 1986 1991 1996 2001	Ontario and Counties	Component Method
STATISTICS CANADA[5]	1974	1976 1981 1986 2001	Nation and Provinces	Component Method

SOURCES:

1. Canada 2000, System Research Group, 1970.

2. Demographic Aspects of Housing Demand, 1986, Economics and Statistics Division, Central Mortgage Housing and Corporation, 1971.

3. A. Goracz, I.Lithwick and L. O. Stone, The Urban Future, Research Monograph No. 5, Ottawa, 1971.

4. Economics Analysis Branch, Ministry of Treasury, Economics and Intergovernmental Affairs, Ontario, 1973.

5. Population Projections for Canada and the Provinces 1972-2001, Statistics Canada, 1974.

6. Defined in text.

gradual decline in the late 1920's and early 1930's, fertility rose sharply until the late 1950's (Figure 4). Migration is also difficult to estimate with any degree of certainty, especially for small areas, because the reasons for change are volatile and varied. As pointed out in Volume I, international migration and, to a lesser extent, inter-provincial migration are two of the most important migration streams which affect the size and distribution of population in Ontario.

A review of the assumptions concerning fertility and migration used in various projections indicates that the Ontario government's forecast assumes rates are generally lower than the other projections or at the lower end of the scale (Table 2). For example, the net migration rate used in the SRG estimate was nearly double that assumed in the Ontario government forecast. Similarly, both Lithwick and CMHC assumed a slight increase in the fertility rate or stabilization at a fairly high level, while the Ontario government's projection assumed a slight decline in the future fertility rate.

Translating these differences in assumptions into absolute terms, one can observe that, while the Ontario government's population estimate is generally lower than those prepared by SRG, CMHC, and Lithwick, (Tables 3A and 3B), the disparities do not become substantial until the year 2001. At this time the differences between the projections range from a low of about two million (11 1/2 million versus 13 1/2 million: Ontario government vis-a-vis SRG) to a high

FIGURE 4: FERTILITY RATE IN ONTARIO 1921 – 1971

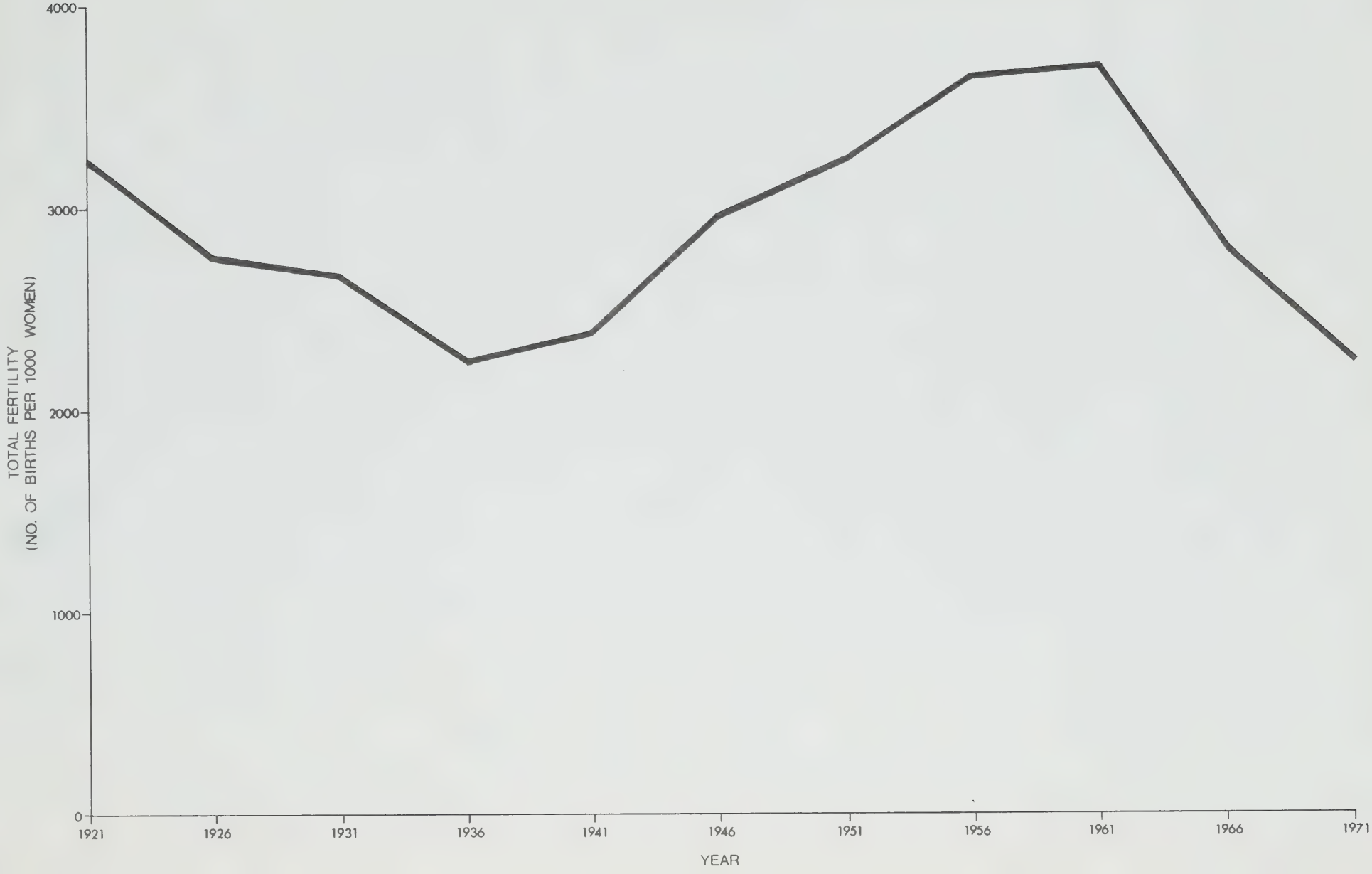

TABLE 2

COMPARISON OF ASSUMPTIONS REGARDING FERTILITY AND NET MIGRATION RATES

PROJECTION	TOTAL FERTILITY (NUMBER OF BIRTHS PER 1,000 WOMEN)*	NET MIGRATION (NO. OF PERSONS PER ANNUM)
SRG	declining rate, but information was given by specific age groups	1966-1986: 89,000 Ontario 1986-2001: 107,000 Ontario
CHMC	assume 1970 rate of 2,366 constant up to 1986	1971-1986: 100,000 Canada
LITHWICK	increase rate, no specific figures were published, assumptions described only	
ONTARIO GOVERNMENT EAB	1971-1986, decline to 2,105 1986-2001, decline to 1,990	1971-2001: 50,000 Ontario
STATISTICS** CANADA	1986 - High = 2,630 Low = 1,810	1972-1986 Assumption A = 118,600 " B = 97,300 " C = 65,200 " D = 52,500

* In 1972, the fertility rate in Ontario was 1,992

** No specific figures on fertility for Ontario under each of the assumptions were given. In the document, it was indicated that the provincial figures were derived by means of some projectional method based on the figures assumed for Canada.

Canada: Assumption A - 2,600
" B - 2,200
" C - 1,800
" D - 1,800

No information on the fertility rate and net migration assumption for 2001 was published.

TABLE 3 (A)

COMPARISON OF POPULATION PROJECTIONS PREPARED BY THE ONTARIO GOVERNMENT AND OTHER AGENCIES
CENSUS METROPOLITAN AREAS (CMA) AND ONTARIO, 1986

CMA	1971 POPULATION	ONTARIO GOVERNMENT[1]		LITHWICK[2]		CMHC[3]	SRG[4]	STATISTICS[5] CANADA
		ASSUMPTION A	ASSUMPTION B	N-4 SERIES	I-A SERIES			
TORONTO AND HAMILTON	3,126,600	4,107,900	4,263,300	4,810,400	4,557,000	4,986,300	4,506,000	Not Available
LONDON	286,000	365,900	352,000	412,600	311,000	365,400	323,000	
WINDSOR	258,600	332,500	307,800	357,500	311,000	317,600	287,000	
OTTAWA* (ONTARIO SECTION)	453,300	628,600	591,800	762,000	599,000	675,000	595,000	
KITCHENER	226,800	329,800	328,300	N.A.	335,000	420,000	N.A.	
TOTAL CMA	4,351,300	5,764,700	5,843,200		6,113,000	6,764,300		
ONTARIO	7,703,000	9,753,000		N.A.		11,110,000	10,331,000	10,935,500 (A) 10,073,600 (B) 9,747,200 (C) 9,598,500 (D)

NOTE: CMA - Census Metropolitan Areas
NA - Not Available
* Refers to the Ontario Portion of CMA, estimated at 3/4 of the total CMA.

(A), (B), (C), and (D) - refer to different input assumptions

SOURCES: 1 Economic Analysis Branch, Ministry of Treasury, Economics and Intergovernmental Affairs, Ontario 1973.
2 A. G. Lithwick and L. O. Stone, The Urban Future, Research Monograph 5, Ottawa, 1971.
3 Demographic Aspects of Housing Demand, 1986, Economic and Statistics Division, Central Mortgage Housing and Corporation, 1971
4 Year 2000, System Research Group, 1970
5 Population Projection for Canada and the Provinces, 1972-2001, Statistics Canada 1974

TABLE 3 (B)

COMPARISON OF POPULATION PROJECTIONS PREPARED BY THE ONTARIO GOVERNMENT AND OTHER AGENCIES, CENSUS METROPOLITAN AREAS (CMA) AND ONTARIO, 2001

CMA	1971 POPULATION	ONTARIO GOVERNMENT[1]		LITHWICK[2]		SRG[3]	STATISTICS[4] CANADA
		ASSUMPTION A	ASSUMPTION B	N-4 SERIES	I-A SERIES		
TORONTO AND HAMILTON	3,126,600	5,028,600	5,470,200	7,711,000	7,159,000	6,709,000	Not Available
LONDON	286,000	459,000	435,000	674,000	452,000	425,000	
WINDSOR	258,600	409,600	342,500	577,000	432,000	344,000	
OTTAWA * (ONTARIO SECTION)	453,300	791,200	729,000	1,260,000	888,000	775,000	
KITCHENER	226,800	437,500	413,300	N.A.	504,000	N.A.	
TOTAL CMA	4,351,300	7,133,700	7,390,000		9,435,000		
ONTARIO	7,703,000	11,646,000		N.A.		13,420,000	14,698,000 (A) 12,518,100 (B) 11,628,700 (C) 11,183,900 (D)

NOTE: CMA - Census Metropolitan Areas
NA - Not Available
* Refers to the Ontario Portion of CMA, estimated at 3/4 of the total CMA.

(A), (B), (C), and (D) - refer to different input assumptions.

SOURCES: 1 Economic Analysis Branch, Ministry of Treasury, Economics and Intergovernmental Affairs, 1973.
2 A. G. Lithwick and L. O. Stone, The Urban Future Research Monograph 5, Ottawa, 1971.
3 Year 2000, System Research Group, 1970.
4 Population Projection for Canada and the Provinces, 1972-2001, Statistics Canada, 1974.

of three and a half million (11 1/2 million versus 15 million: Ontario government vis-a-vis Lithwick N-4).* In fact, the estimated total for the six Census Metropolitan Areas alone under the Lithwick N-4 assumption differs by only about 10% from the Ontario government's projected total for the whole province. On the other hand, the Ontario government's estimate corresponds reasonably well with a number of the recent forecasts (Assumptions C and D) prepared by Statistics Canada.

B. THE MOST LIKELY DIRECTION

What would be the most likely population forecast for Ontario among the various possibilities examined in the previous section? In a large measure, the key factor in answering this question lies in the future direction of change in fertility and migration rates. On the basis of available knowledge, it appears that the assumptions adopted by the Ontario government in making its projections are more in keeping with current social values and economic factors. First, the fertility rate in Ontario has already dropped below the replacement level--a rate considerably lower than those used in the forecasts prepared by Lithwick, CMHC, and Statistics Canada's Projection "A."** Increasingly, women's desire to seek full-time employment, the rising cost of living, improved technology in birth control (and a

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*The probable provincial total under the N-4 assumption is about 15 million, comprised of about 10 1/2 million people estimated by Lithwick for the four metropolitan areas plus about 4 1/2 million for the rest of the province. The latter stood at about 3/4 million in 1971.

**The replacement value is 2100 births per 1000 women.

willingness to use it)--all these factors point to a continuation of the trend toward small families. As a result, the future fertility rate is likely to stabilize at the present level, or decline slightly.

Secondly, both Lithwick and SRG suggested that the employment rate will increase fairly substantially and thus lead to a higher level of migration to Ontario than in the past. For example, SRG anticipated a threefold employment increase in trade, finance, and service, coupled with an annual growth rate of 1.8% in manufacturing employment for the next thirty years. (The latter may be compared with the actual increase of 1.3% per annum during the past twenty years.) However, in manufacturing employment, indications are that the rate of growth will be lower than in the past. Additionally, a number of factors also point to less immigration into Ontario in the future, among them the reduced number of post-war refugees, comparatively favourable economic conditions in Europe, a tightening of Canadian immigration policy, increased prosperity in western Canada, and perhaps the effect of the federal government's regional development policy. Since the war, net migration (international and interprovincial) in Ontario has averaged between 60,000 and 70,000 per year, and it is unlikely the number will rise beyond this level, as envisaged in the SRG, CMHC, and Statistics Canada Projection A.*

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*Wong, C., Ontario's Changing Population, Vol. I: Pattern and Factors of Change, 1941-1971, Ontario Ministry of Treasury, Economics and Intergovernmental Affairs, 1975.

In the light of the above considerations, the Ontario government projection was selected for this work. According to this projection, the provincial population will be 9,753,000 by 1986 and 11,646,000 by 2001. (The Statistics Canada Projection C figures are nearly identical to these--within less than 1/4 of 1%--while the Projection D figures agree within 1 1/2% (1986) and 4% (2001).)

The Ontario government projection was prepared by the Economic Analysis Branch (EAB) of the Ministry of Treasury, Economics and Intergovernmental Affairs. As was mentioned earlier, the projection was based on the component technique applied to the province as a whole and to each county separately.* However, this technique tends to be less reliable for small areas because of the inherent difficulties in assessing net migration. Also, in reviewing the proportion of the population in the six planning regions and some of the counties to that of the province, it was shown that the EAB projection had implicitly assumed that the share of the provincial total held by the Central Ontario Region and the six COLUC counties would be growing at a much slower rate in the future than in the past.** (Figure 5) However, the present analysis indicates that the geographical pattern of population

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*For a more detailed description of the assumptions and methods used in the projection prepared by the Economic Analysis Branch, see the report currently in preparation by the branch.

**The six COLUC counties are Wentworth, Halton, Peel, York, Ontario, and Durham.

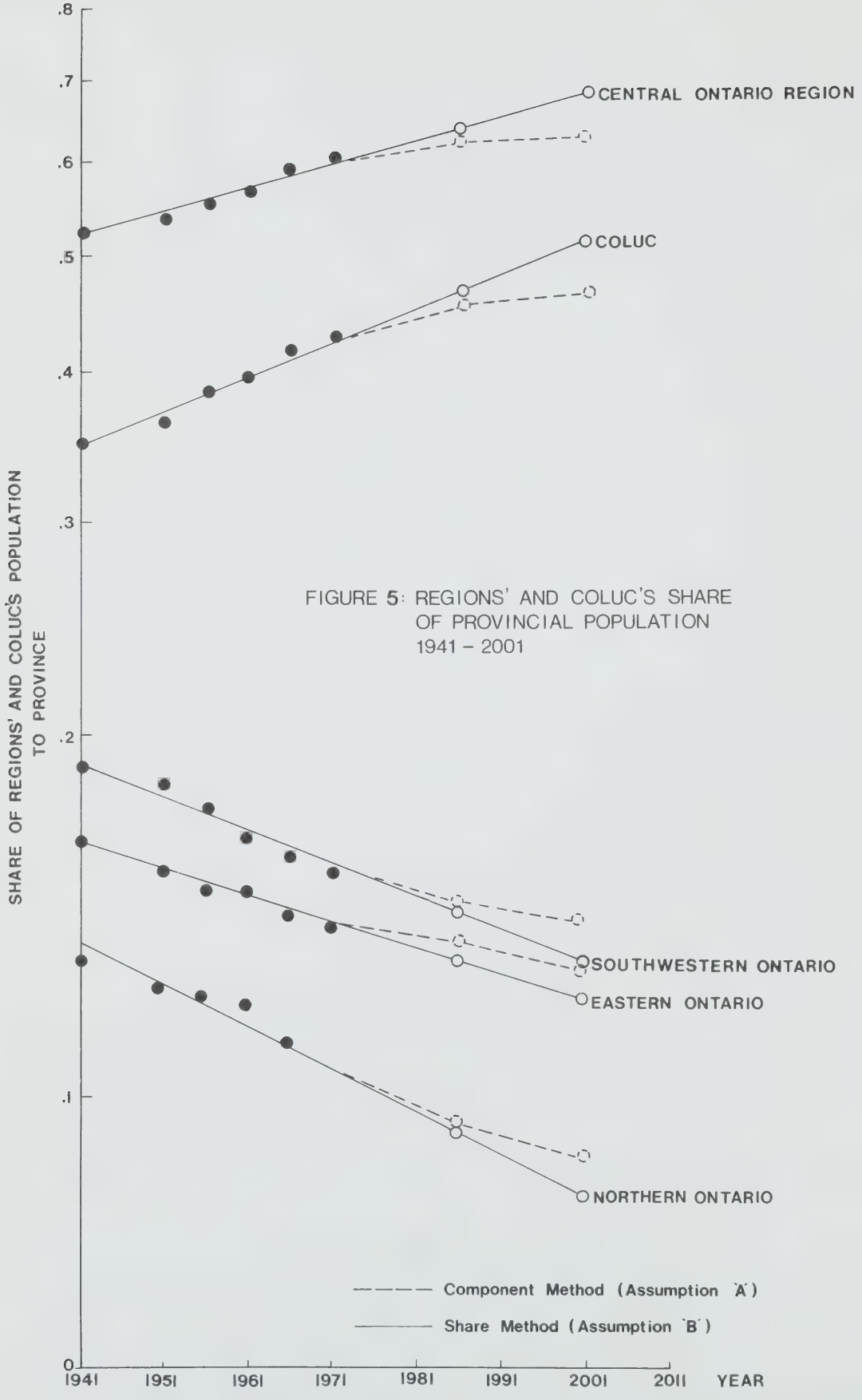

FIGURE 5: REGIONS' AND COLUC'S SHARE OF PROVINCIAL POPULATION 1941 – 2001

change in Ontario will become more extreme in the future: the large urban complexes, in particular the Toronto/Hamilton area, will probably have a much larger proportion of the provincial population than they have now. Further, geographical differences in the fertility rate will diminish, and migration will thus become the predominant factor affecting the spatial pattern of population change. The bulk of migration tends currently to concentrate in the Toronto/Hamilton area; and this situation is not likely to change much.

Therefore, it is desirable to introduce a complementary estimate for areas below the provincial level, using the "share" method. This method assumes that the population share of the planning regions and counties will continue to change at a rate similar to that of the past (Assumption B). In both sets of calculations, the share method was used to estimate the population in the urban centres since, in the EAB projection, no information was available below the county level (Table 4). Note that both sets assume that Central Ontario's share of Ontario's increasing population will continue to increase. But Assumption A states that the rate of increase will diminish, while Assumption B states that it will continue to increase as it has in the recent past.

Under Assumption B, no attempt was made to derive any estimate on a county or centre basis for Northern Ontario. It was felt that the heavy dependence of many of these areas on resource-based industries, which tend to fluctuate fairly substantially, make it difficult and perhaps somewhat unrealistic

TABLE 4

DESCRIPTIONS OF PROJECTIONS,
ASSUMPTIONS "A" AND "B", 1986 AND 2001

PROJECTION	ASSUMPTION "A"	ASSUMPTION "B"
PROVINCE	Component Method	Component Method, same provincial total as Assumption "A"
COUNTY	Component Method	Share Method, assumed the county's share of the provincial population in the future will be similar to past trend
CENTRE	Share Method, assumed the centre's share of the county population in the future will be similar to the past trend	Share Method, assumed the centre's share of the county population in the future will be similar to the past trend

NOTE: All incorporated centres with population exceeding 1,000 in 1971 were included for analysis.

to project demographic trends for any areas other than the whole region. Similarly, in the Toronto/Hamilton urban complex, the distribution of population among the centres will probably depend on various developmental factors such as the accessibility of transportation, the availability of services, municipal zoning policies, etc., rather than on adherence to any past demographic trend. For these reasons, no attempt was made to project any population trends for individual urban places within the six COLUC counties. The population estimates for the centres were taken from the population estimates developed by the COLUC task force, which were based on Assumption B.* It should be pointed out that the COLUC population figures by urban place are essentially targets set by certain development policy objectives. They are not trend figures.

The results of the projections are summarized in Tables 5 to 10, Figure 6 and Appendices A to D. In general, the projected pattern reflects to a fair extent the characteristics of the past trend discussed in Volume I. Two sets of results are presented here under Assumption A and B. The major observations associated with the 1986 and 2001 projections are presented in the next few sections.

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*The COLUC study area adopted by the task force differed from the combined six COLUC counties only marginally (i.e., counties of Wentworth, Halton, Peel, York, Ontario and Durham). In 1971, the population difference between the COLUC study area and the COLUC counties, only 22,000, amounted to less than 1%. For the source of population targets by centres, 1986 and 2001, see The Central Ontario Lakeshore Urban Complex (COLUC) a report prepared for the Advisory Committee on Urban and Regional Affairs, Government of Ontario, 1974.

TABLE 5

COMPARISON OF POPULATION CHANGE, ONTARIO, 1941 - 1971 VERSUS 1971 - 2001

PERIOD	POPULATION CHANGE	
	No.	ANNUAL %
1941 - 1971	3,915,400	2.4
1971 - 2001	3,944,200	1.4

TABLE 6

POPULATION PROJECTION AND PERCENT SHARE BY PLANNING REGIONS, ONTARIO 1986 AND 2001

POPULATION

PLANNING REGION	1961	1971	1986		2001	
			ASSUMPTION "A"	ASSUMPTION "B"	ASSUMPTION "A"	ASSUMPTION "B"
CENTRAL*	3,542,700	4,644,900	6,072,200	6,193,600	7,414,000	7,745,300
SOUTHWESTERN	1,020,900	1,180,500	1,426,200	1,375,300	1,661,600	1,531,800
EASTERN	920,700	1,070,900	1,312,500	1,258,200	1,518,600	1,426,800
NORTHEASTERN	535,300	582,400	708,300	663,600	821,100	669,800
NORTHWESTERN	216,500	224,400	233,300	263,000	230,900	273,600
ONTARIO**	6,236,100	7,703,100	9,752,500	9,753,700	11,646,200	11,647,300

PERCENT SHARE

PLANNING REGION	1961	1971	1986		2001	
			ASSUMPTION "A"	ASSUMPTION "B"	ASSUMPTION "A"	ASSUMPTION "B"
CENTRAL*	56.8	60.3	62.3	63.5	63.7	66.5
SOUTHWESTERN	16.4	15.3	14.6	14.1	14.3	13.2
EASTERN	14.7	13.9	13.4	12.9	13.0	12.2
NORTHEASTERN	8.6	7.6	7.3	6.8	7.0	5.8
NORTHWESTERN	3.5	2.9	2.4	2.7	2.0	2.3
ONTARIO	100.0	100.0	100.0	100.0	100.0	100.0

* Includes COLUC Area

** The provincial total under each of the two assumptions should be identical. The slight differences were due to rounding of figures.

TABLE 7

RATIO OF NATURAL INCREASE TO NET MIGRATION EFFECT ASSUMPTION "A" PROJECTION, BY METROPOLITAN COUNTIES AND PLANNING REGIONS, ONTARIO, 1971-1986, 1986-2001 AND 1971-2001

METROPOLITAN COUNTIES AND PLANNING REGIONS	RATIO OF NATURAL INCREASE : NET MIGRATION EFFECT		
	1971 - 1986	1986 - 2001	1971 - 2001
OTTAWA CARLETON	42 : 58	26 : 74	34 : 66
REST OF EASTERN ONTARIO	82 : -18	75 : -25	79 : -21
EASTERN ONTARIO REGION	65 : 35	53 : 47	60 : 40
SIX COLUC COUNTIES (TORONTO/HAMILTON)	45 : 55	30 : 70	37 : 63
WATERLOO COUNTY (KITCHENER/WATERLOO)	45 : 55	36 : 64	40 : 60
REST OF CENTRAL ONTARIO	54 : 46	44 : 56	49 : 51
CENTRAL ONTARIO REGION	46 : 54	33 : 67	40 : 60
MIDDLESEX (LONDON)	48 : 52	34 : 66	42 : 58
ESSEX (WINDSOR)	63 : 37	56 : 44	59 : 41
REST OF SOUTHWESTERN ONTARIO	91 : 9	89 : 11	90 : 10
SOUTHWESTERN ONTARIO REGION	67 : 33	59 : 41	63 : 37
NORTHEASTERN ONTARIO REGION	98 : -2	97 : -3	98 : -2
NORTHWESTERN ONTARIO REGION	56 : -44	48 : -52	52 : -48
ONTARIO	56 : 44	44 : 56	50 : 50

NOTES: Net migration effect includes also the deaths and children borne by the migrants after their arrival in Ontario. According to the input assumptions, the total migration gain to Ontario over the next 30 years will total 1.5 million (50,000 per year x 30 years). But the total effect will be 1.95 million if one takes into account the natural increase of the migrants. Thus, on an average, each migrant to Ontario, is equivalent to 1.30 persons (1.95/1.50) of population growth.

Assumption B does not yield breakdown of projection by natural increase and migration effect.

TABLE 8

POPULATION CHANGE BY COLUC AND MAJOR CENSUS METROPOLITAN AREAS, (CMA) ONTARIO, 1971-2001

AREA	1971 POPULATION		2001 POPULATION	POPULATION GROWTH 1971-2001		ANNUAL CHANGE (%)
	NO.	% OF PROVINCE		NO.	% OF PROVINCE	
COLUC (SIX COUNTIES, ESSENTIALLY TORONTO AND HAMILTON CMA'S	3,347,600	43.5	5,407,100(A) 5,881,900(B)	2,059,500(A) 2,534,300(B)	52.2(A) 64.3(B)	1.6(A) 1.9(B)
KITCHENER CMA	226,800	2.9	437,500(A) 413,300(B)	210,700(A) 186,500(B)	5.3(A) 4.7(B)	2.2(A) 2.0(B)
LONDON CMA	286,000	3.7	459,000(A) 435,000(B)	173,000(A) 149,000(B)	4.4(A) 3.8(B)	1.6(A) 1.4(B)
WINDSOR CMA	258,600	3.4	409,600(A) 342,500(B)	151,000(A) 83,900(B)	3.8(A) 2.1(B)	1.5(A) 0.9(B)
OTTAWA CMA ONTARIO SECTION	453,300	5.9	791,200(A) 729,000(B)	337,900(A) 275,700(B)	8.6(A) 7.0(B)	1.9(A) 1.6(B)
TOTAL	4,572,300	59.4	7,504,400(A) 7,801,700(B)	2,932,100(A) 3,229,400(B)	74.4(A) 81.9(B)	1.7(A) 1.8(B)
REST OF ONTARIO	3,130,700	40.6	4,141,600(A) 3,844,300(B)	1,010,900(A) 713,600(B)	25.6(A) 18.1(B)	0.9(A) 0.7(B)
ONTARIO	7,703,000	100.0	11,646,000	3,943,000	100.0	1.4

NOTE: The six COLUC counties make up the entire Toronto and Hamilton CMA'S plus their fringes. In 1971, the population difference between the six COLUC counties and the Toronto and Hamilton CMA combined was only 221,000 (3,347,600 vs 3,126,600).

(A) - refer to Assumption A projection

(B) - refer to Assumption B projection

TABLE 9

POPULATION CHANGE BY MAJOR CENTRES WITHIN COLUC, 1971-2001

AREA	1971 POPULATION		2001 POPULATION	POPULATION GROWTH 1971-2001		ANNUAL CHANGE (%)
	NO.	% OF PROVINCE		NO.	% OF PROVINCE	
HAMILTON	354,000	4.6	598,000(R_A) 595,000(R_B)	244,000(R_A) 241,000(R_B)	6.2(R_A) 6.1(R_B)	1.8(R_A) 1.7(R_B)
MISSISSAUGA	143,000	1.9	356,000(R_A) 350,000(R_B)	213,000(R_A) 207,000(R_B)	5.4(R_A) 5.3(R_B)	3.1(R_A) 3.0(R_B)
BRAMPTON/BRAMALEA	65,000	0.8	130,200(R_A) 200,000(R_B)	65,200(R_A) 135,000(R_B)	1.6(R_A) 3.4(R_B)	2.3(R_A) 3.8(R_B)
OSHAWA/WHITBY	115,000	1.5	397,000(R_A) 254,000(R_B)	282,000(R_A) 139,000(R_B)	7.2(R_A) 3.5(R_B)	4.2(R_A) 2.7(R_B)
TORONTO SUB-REGION	2,104,000	27.3	2,805,000(R_A) 2,740,000(R_B)	701,000(R_A) 636,000(R_B)	17.8(R_A) 16.1(R_B)	1.0(R_A) 0.9(R_B)
TOTAL	2,781,000	36.1	4,286,200(R_A) 4,139,000(R_B)	1,505,200(R_A) 1,358,000(R_B)	38.2(R_A) 34.4(R_B)	1.5(R_A) 1.3(R_B)
REST OF COLUC SIX COUNTIES	566,600	7.4	1,595,700(R_A) 1,742,900(R_B)	1,029,100(R_A) 1,176,300(R_B)	26.1(R_A) 29.8(R_B)	3.5(R_A) 3.8(R_B)
ONTARIO	7,703,000	100.0	11,646,000	3,943,000	100.0	1.4

NOTE: 1) Only those centres approaching and over 200,000 population in 2001 were considered here.

2) Toronto Sub-region includes Metro Toronto plus part of northern fringe.

3) Only Assumption B results are available here. R_A and R_B refer to the range of tolerance of targets (see COLUC Task Force Report).

TABLE 10(A)

COMPARISON OF PROJECTED POPULATION TREND (BASED ON ASSUMPTION B)
VERSUS ALLOCATING (OR TARGETS) R_A SERIES, COLUC COUNTIES,
1986 AND 2001

COUNTIES	1986			2001		
	TREND	ALLOCATION (R_A SERIES)	PROPORTION OF ALLOCATION/ TREND (%)	TREND	ALLOCATION (R_A SERIES)	PROPORTION OF ALLOCATION/ TREND (%)
DURHAM AND ONTARIO	351,000	541,000	154	477,600	878,000	184
WENTWORTH	477,900	491,000	103	535,800	708,000	132
HALTON	331,600	252,000	76	500,800	348,000	69
PEEL	565,700	421,000	74	955,100	740,000	77
YORK/ METRO TORONTO	2,857,900	2,879,200	101	3,412,600	3,207,900	94
COLUC COUNTIES	4,584,200	4,584,200		5,881,900	5,881,900	

NOTES: (1) The allocation figures for each of the counties were derived from the Central Ontario Lakeshore Urban Complex (COLUC) Task Force Report submitted to the Advisory Committee on Urban and Regional Planning, Ontario, 1974. The R_A series refers to Allocation "A" in the COLUC Report. The Task Force Report for the COLUC area was based on an earlier projection of 4.43 million and 5.65 million for 1986 and 2001, respectively. However, subsequently, the control total was revised upwards slightly. Secondly, the COLUC area used in the COLUC Task Force Report is slightly smaller than the six COLUC counties combined. Accordingly, the COLUC allocation figures were modified upward to account for these two factors.

(2) See Appendix E.

TABLE 10 (B)

COMPARISON OF PROJECTED POPULATION TREND (BASED ON ASSUMPTION B) VERSUS ALLOCATION (OR TARGETS) R_B SERIES, COLUC COUNTIES, 1986 AND 2001

COUNTIES	1986			2001		
	TREND	ALLOCATION* (R_B SERIES)	PROPORTION OF ALLOCATION/ TREND (%)	TREND	ALLOCATION (R_B SERIES)	PROPORTION OF ALLOCATION/ TREND (%)
DURHAM AND ONTARIO	351,000	419,000	119	477,600	740,000	155
WENTWORTH	477,900	556,000	116	533,800	705,000	132
HALTON	331,600	309,000	93	500,800	494,000	99
PEEL	565,700	526,000	93	955,100	783,000	82
YORK/ METRO TORONTO	2,857,900	2,774,200	97	3,412,600	3,159,900	93
COLUC COUNTIES	4,584,200	4,584,200		5,881,900	5,881,900	

NOTES: See Table 10(A) and Appendix E

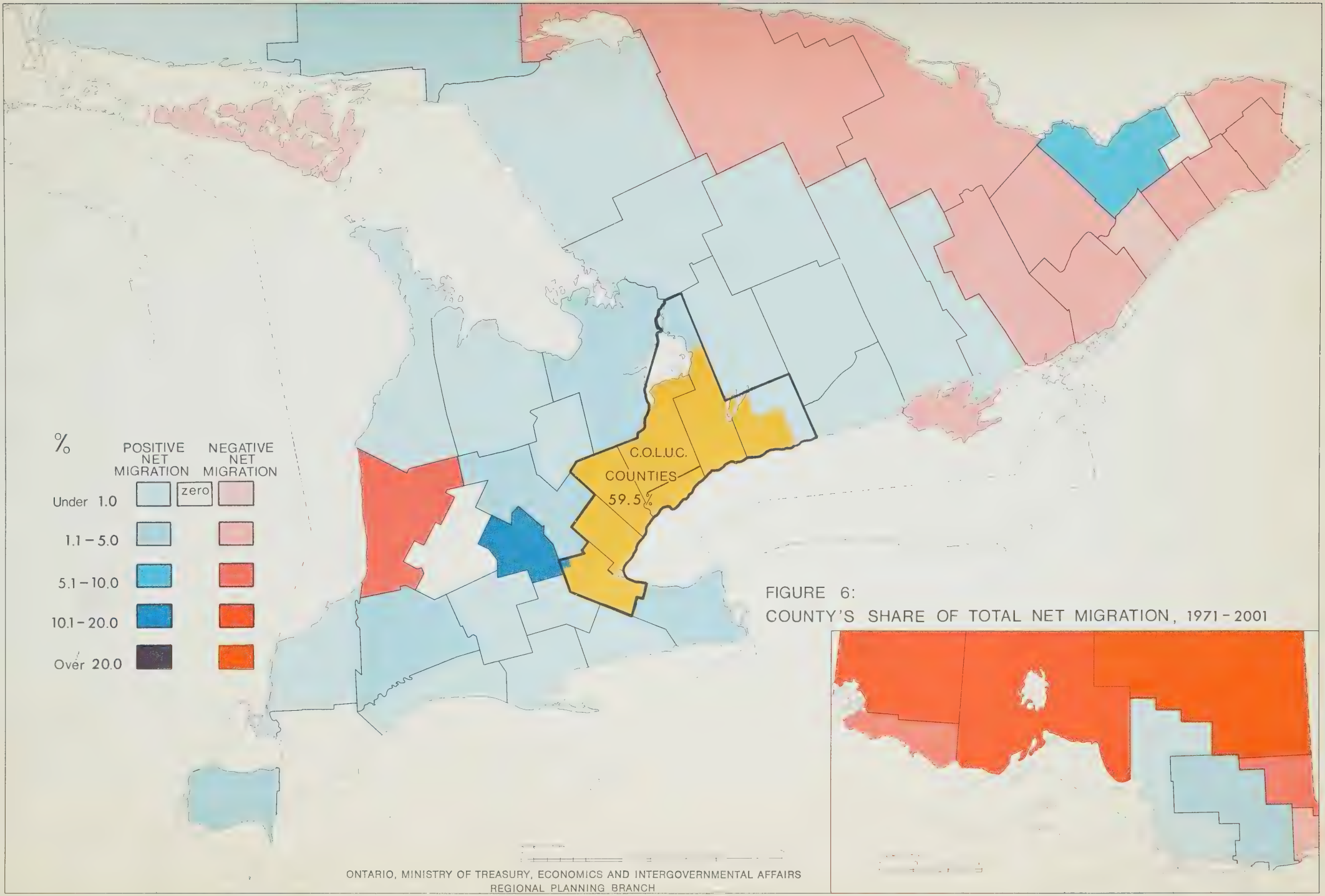

FIGURE 6:
COUNTY'S SHARE OF TOTAL NET MIGRATION, 1971 - 2001

ONTARIO, MINISTRY OF TREASURY, ECONOMICS AND INTERGOVERNMENTAL AFFAIRS
REGIONAL PLANNING BRANCH

C. GEOGRAPHICAL PATTERN OF THE FUTURE POPULATION

(1) There will be continuous population growth in Ontario over the next 30 years. The province will increase by close to 4 million people, which is roughly the same increase as that which took place between 1941-1971 (Table 5). However, *the rate of change during the next 30 years will be much lower --1.4% in 1971-2001 versus 2.4% in 1941-1971.**

(2) *Central Ontario is the only planning region which is expected to continue to increase its provincial share of population, while the share of all other regions will decline* (Table 6). By 2001, close to 2/3 of the provincial population will be concentrated in the Central Ontario Planning Region (about 63.7%, according to Assumption A, and 66.5%, according to Assumption B).

(3) The growth is a result of natural increase and the net effect of migration; the latter component will account for an increasing proportion of the total growth. *During the next three decades, only about half of the total population growth will be comprised of natural increase, with the remaining half derived from migration*

*The rate will drop to 0.8% and 1.1% per annum if migration to the province is assumed to be zero and 25,000 per year, respectively.

(Table 7). Further, according to Assumption "A", about 60% of the growth of the Central Ontario Planning Region will be attributable to migration. For some metropolitan areas (e.g., Ottawa and COLUC), the proportion of growth due to migration effect will be as high as 70-80% during 1986-2001. At the other extreme, Northwestern Ontario is expected to lose about half of its natural increase.

(4) *A number of the counties in the province, mainly those in northern and eastern Ontario, will continue to lose people through migration (Figure 6).* Most of the areas with migration loss are in northern Ontario. Huron is the only county in the rest of southern Ontario which shows significant net migration loss.

(5) *In 1971, the six major Census Metropolitan Areas held about 60% of the total provincial population. But they are expected to gain between 75% (under Assumption A) and 80% (under Assumption B) of the total growth in the province during the next 30 years (Table 8).*

(6) *Not all the major metropolitan areas will grow faster than the average provincial rate.* According to Assumption B, for instance, the growth rate in Kitchener, London, and Ottawa will match or exceed the provincial average, but that of Windsor, the fourth major metropolitan area outside COLUC, probably will not (Table 8). The same

conclusion can be drawn for some urban places within the COLUC areas (Table 9). The Toronto subregion, for instance, is expected to grow at a rate below the provincial average, partly through planning policy and partly because developable land is limited.* In the case of Hamilton, it should be pointed out that the figures shown (between 598,000 and 595,000) are essentially population *targets;* they are not *trend* projections.** As can be seen in Table 9, according to trend estimates, the performance of Wentworth county (which corresponds essentially to the Hamilton urban place) will fall below the provincial average. This finding is consistent with some of the analytical findings discussed in Volume I, which showed that net migration to the county of Wentworth has dropped steadily in the past 30 years, to the degree that the county in fact experienced a slight loss during the 1966-1971 period.

(7) Apart from COLUC and the other CMA areas, *the growth rate of the rest of the province is expected to be only half of the provincial average*.

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* An example of a planning policy which would affect the population size of the Toronto subregion was Metro Toronto's decision not to raise the residential density much beyond the present level.

** All population information contained in Tables 10A and 10B (i.e., all urban places in COLUC) represent allocations, not trends.

(8) *However, in absolute terms, the population in the rural areas and the small centres (population less than 1000) as a whole will continue to grow.* For example, during the next 30 years, about 1/2 million people will be added to the townships and small centres in southern Ontario (from 1.06 million in 1971 to 1.55 million in 2001).

(9) Comparing the projected population trend with the allocations called for in the COLUC Task Force Report, *the 2001 population levels given in the report for the counties of Durham and Ontario combined under allocations R_A and R_B series will be over 80% and 50%, respectively, more than the trend forecast (Table 10A and 10B).** These changes, together with a slight reduction of trend in the York/Metro Toronto area, will produce *a shift of about 10% of COLUC's 2001 population to the Counties of Durham, Ontario, and Wentworth under the R_A allocation and about 7 1/2% under the R_B allocation series over and above trend.*

*The Central Ontario Lakeshore Urban Complex, op. cit.

D. THE EMERGING URBAN SYSTEM (TABLES 11 and 12)

(1) *According to the trend, outside the COLUC area, the 2001 urban system in the rest of southern Ontario will not be significantly different from what it is now.* Although the share of the total provincial population gained by all the centres with 100,000 people or less will decline somewhat between 1971 and 2001, the number, the distribution, and the sizes of the centres will change only slightly (Tables 11 and 12). In 1971, only the four CMA areas outside COLUC (London, Windsor, Ottawa, and Kitchener), together with St. Catherines, exceeded 100,000 in population. If we exclude these four places, only five other major centres show a noticeable shift in population--Brantford and Guelph from the 50,000-100,000 range in 1971 to the 100,000-200,000 range in 2001; and Barrie, Cornwall, and Welland from the 10,000-50,000 range in 1971 to the 50,000-100,000 range in 2001. In southern Ontario, 26 centres outside the COLUC area will have 10,000-50,000 by 2001. However, only four centres will be new. The rest were already in this population range in 1971.

TABLE 11

DISTRIBUTION OF CENTRES BY SIZE IN THE URBAN SYSTEM OF ONTARIO, 1971 AND 2001

CLASS OF CENTRES[a]	1971		2001	
	NO. OF CENTRES	% OF PROVINCIAL POPULATION	NO. OF CENTRES	% OF PROVINCIAL POPULATION
OVER 1 MILLION	1(1)	27.3	1(1)	24.1
1/2 MILLION - 1 MILLION	none		2(1)	11.4
1/3 MILLION - 1/2 MILLION	2(1)	10.5	5(2)	16.7
200,000 - 1/3 MILLION	3(0)	10.0	none	
100,000 - 200,000	3(2)	4.8	6(4)	7.8
50,000 - 100,000	9(3)	7.4	11(4)	5.8
10,000 - 50,000	32(7)	8.3	35(9)	7.1
1,000 - 10,000	147(26)	5.8	156(19)	4.5
ALL TOWNSHIPS AND CENTRES WITH POPULATION LESS THAN 1,000		15.4		14.5
NORTHERN ONTARIO CENTRES		10.5		8.1
ONTARIO		100.0		100.0

NOTE: 1) The classifications of centres were based on the Assumption A population projection and the R_A allocation series for urban places within COLUC. With the exception of North Oakville, which would have 1,000 people under R_A by year 2001, and 77,000 under R_B, there is an insignificant difference between the urban systems under allocations R_A and R_B. The same statement can also be applied for the urban systems under the Assumptions A and B projections.

2) The figures in the brackets refer to the number of centres in that particular class within the COLUC area.

TABLE 12

URBAN SYSTEM IN SOUTHERN ONTARIO, 1971 AND 2001

CLASS OF CENTRES	NAME OF CENTRES	
	1971	2001
OVER 1 MILLION	Toronto* UP	Toronto* UP
1/2 MILLION - 1 MILLION	none	Hamilton UP OTTAWA CMA
1/3 MILLION - 1/2 MILLION	Ottawa CMA Hamilton UP	Mississauga UP Oshawa/Whitby UP London CMA Windsor CMA Kitchener CMA
200,000 - 1/3 MILLION	London CMA Windsor CMA Kitchener CMA	none
100,000 - 200,000	Mississauga UP Oshawa/Whitby UP St. Catharines	Burlington UP Erin Mills/Meadowville UP Brampton/Bramalea UP North Pickering UP St. Catharines Brantford** Guelph
50,000 - 100,000	Burlington UP Oakville UP Brampton/Bramalea UP Brantford** Peterborough Guelph Sarnia Kingston Niagara Falls	South Pickering UP Oakville UP Aurora/Newmarket UP Richmond Hill UP Peterborough Barrie** Sarnia Kingston Niagara Falls Cornwall Welland
10,000 - 50,000	Malton UP South Pickering UP Ajax UP Georgetown UP Aurora/Newmarket UP Richmond Hill UP Markham/Unionville UP Cornwall Barrie** Welland Simcoe Cobourg Port Colborne Owen Sound Fort Erie Grimsby Lincoln Niagara-on-the-Lake Leamington Pelham Thorold Orillia Midland/Penetanguishene Lindsay Pembroke Chatham Wallaceburg Woodstock Stratford Belleville Trenton Brockville	Malton UP Milton UP Ajax UP Georgetown UP Bowmanville UP Columbus UP Woodbridge UP Markham/Unionville UP Stouffville UP Orangeville Simcoe Cobourg Port Colborne Owen Sound Fort Erie Grimsby Lincoln Niagara-on-the-Lake Leamington Pelham Thorold Orillia Midland/Penetanguishene Lindsay Pembroke Chatham Wallaceburg Woodstock Stratford Belleville Trenton Brockville Hawkesbury Huntsville Collingwood

UP = Urban Place as defined by the COLUC Task Force
CMA = Census Metropolitan Area as defined by the Statistics Canada 1971
* : Toronto UP includes Metro Toronto plus part of its fringe area
** : Barrie and Brantford as used here include the city proper plus immediately adjacent urban areas.

(2) *There is no centre east of Oshawa, other than Ottawa, with a population exceeding 100,000 even by 2001.**

(3) *Inside COLUC, the urban system will probably take on a new perspective*. Through the initiation of the Toronto-Centred Region concept, and recently the COLUC task force report, a system of towns and cities in the COLUC area has been called for and specified.** A number of centres such as Mississauga and Oshawa/Whitby are expected to achieve metropolitan status by 2001, with a population exceeding 1/3 of a million people. Similarly, places such as Burlington, Erin Mills/Meadowvale, and Brampton/Bramalea will probably become major centres with population over 100,000.

(4) *Of the various class of centres, only those whose population exceeds one million, together with the category containing the townships and centres with population less than 1,000 are expected to decline in their share of the provincial population*.

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*Kingston will be approaching 100,000 if the surrounding areas are included.

**It is not the intention in this report to discuss the COLUC urban system in detail. The reader wishing further information is referred to the MTARTS study, the TCR document, and the recent COLUC task force reports.

The above findings are based on a provincial population forecast of 11.6 million, which assumes that the average net migration to Ontario will be 50,000 per year (international and interprovincial) and the total fertility rate, measured by the average number of births per woman, will decline from 2.2 in 1971 to 1.98 in 2001. Recently, however, there are some indications that this provincial total could be slightly lower for the following three reasons:

(1) The present fertility rate has dropped below the 2001 value that was used in the forecast.*

(2) There have been some suggestions that, from the standpoint of national, urban, and regional development, a net immigration rate between 50,000 and 100,000 people per year to Canada appears to be a desirable level.**

(3) Recent trends indicate that net migration to Ontario from other provinces will be greatly reduced and perhaps even exhibit a loss because of improved prosperity in western as well as in eastern Canada.

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*Total fertility rate in Ontario has dropped to a value of 1.97 recently.

**For example, in What Kind of West Do We Want?, A Background Paper Prepared for an Address by the Hon. Otto Lang to the Liberal Conference on Western Objectives, Vancouver, 1973 and Immigration Policy Perspectives, Vol. I., Information Canada, 1974. The 50,000 to 100,000 net migration level is equivalent to a gross immigration level of about 110,000 to 160,000 people.

If the total fertility rate declines to a low of about 1.7 in 2001, and the net migration to Ontario (international and interprovincial) were slightly less than 50,000 per year (say, about 45,000 per year), the provincial total would drop to about 11 million, as compared with 11.6 million suggested earlier. If this happened, to what extent would the urban system be affected?

It was indicated earlier that COLUC will gain about two thirds of the total growth in the province in the future. The other four metropolitan areas (Ottawa, London, Kitchener/Waterloo, and Windsor) will take up another 10% to 15% of the total. If the 2001 provincial total were to drop from an original forecast of 11.6 to 11 million, this would mean a reduction of about 1/3 million people in the COLUC area. The amount exceeds the combined population targets called for by the COLUC Task Force for all the second tier cities (excluding Erin Mills/Meadowvale)--1/3 million versus 158,000 (allocation R_A) or 264,000 (allocation R_B) respectively (Table 13).

Reducing the provincial population from 11.6 million to 11 million would also mean a reduction of 6 to 8% in the original projected 2001 population for the major metropolitan areas (e.g., about 50,000 for Ottawa and about 30,000 each for Kitchener and London).

TABLE 13

POPULATION TARGETS FOR SECOND-TIER NEW CITIES (EXCLUDING ERIN MILLS/MEADOWVALE) COLUC, 2001

URBAN PLACES	1971	2001	
		ALLOCATION R_A	ALLOCATION R_B
NORTH BURLINGTON	1,000	1,000	4,000
NORTH OAKVILLE	1,000	1,000	77,000
NORTH PICKERING	2,000	120,000	106,000
AUDLEY	3,000	3,000	17,000
COLUMBUS	1,000	33,000	60,000
TOTAL	8,000	158,000	264,000

SOURCE: Central Ontario Lakeshore Urban Complex (COLUC), A Report submitted to the Advisory Committee on Urban and Regional Development, Ontario, 1974.

Beyond the COLUC and the major metropolitan areas, it is unlikely that the changes would be appreciable, since the expected reduction would be spread out among many places.

E. THE EMERGING PATTERN OF AGE COMPOSITION

Three distinctive changes are expected in the age composition of the future population.

(1) *The population of Ontario as a whole will be somewhat older in the future than it has been in the recent past*. This is largely due to the aging of the people who made up the post-war baby boom, together with the recent decline in fertility rate. Table 14 illustrates the point by tracing the year at which a given age group will represent its largest share of the total population. People who were born just after World War II will be approaching their sixties by the turn of the century. In consequence, the older age groups (45 and over) will constitute a larger share of the population growth between 1971 and 2001 than they did between 1941 and 1971: 44% of the total growth versus 27%--an increase of some 17 percentage points (Table 15). At the same time, the share of the total growth by the younger age groups (0 to 19) is expected to decline. These groups had about 42% of the increase between 1941 and 1971, but are expected to gain only about 14% of the increase between 1971 and 2001, a decline of about 28 percentage points.

(2) *In certain parts of the province, there will be an actual reduction in the number of people in the younger groups (0 to 24)*. These areas include

TABLE 14

PERCENT OF DISTRIBUTION OF POPULATION
BY MAJOR AGE GROUPS, ONTARIO,
1941 TO 2001

MAJOR AGE GROUPS	% DISTRIBUTION					
	1941	1951	1961	1971	1986	2001
0 - 4	7.9	11.2	11.9	8.3	8.7	7.1
5 - 20	25.4	22.7	27.3	29.6	22.9	22.6
20 - 24	8.6	7.7	6.2	8.8	8.6	7.4
25 - 44	29.6	30.0	28.1	25.9	31.7	30.0
45 - 64	20.5	19.8	18.4	19.1	19.0	22.7
65 AND OVER	8.0	8.6	8.1	8.3	9.1	10.2
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0

SOURCES: Statistics Canada.
Ministry of Treasury, Economics and Intergovernmental Affairs, Ontario

NOTE: See Appendix F.

TABLE 15

PERCENT OF POPULATION CHANGE BY MAJOR AGE GROUPS, ONTARIO, 1941-1971, 1971-1986, 1986-2001 AND 1971-2001

MAJOR AGE GROUPS	1941 - 1971 CHANGE		1971 - 1986 CHANGE		1986 - 2001 CHANGE		1971 - 2001 CHANGE	
	NO.	% OF TOTAL	NO.	% OF TOTAL	NO.	% OF TOTAL	NO.	% OF TOTAL
0 - 4	339,400	8.7	210,300	10.3	-26,500	-1.4	183,800	4.7
5 - 19	1,319,400	33.7	-57,300	-2.8	398,700	21.3	341,400	8.8
20 - 24	350,000	8.9	165,900	8.2	24,100	1.3	190,000	4.9
25 - 44	867,300	22.1	1,101,800	54.1	387,800	20.7	1,489,600	38.1
45 - 55	696,500	17.8	370,600	18.2	787,000	42.1	1,157,600	29.6
65 AND OVER	343,100	8.8	244,300	12.0	299,100	16.0	543,400	13.9
TOTAL	3,915,700	100.0	2,035,600	100.0	1,870,200	100.0	3,905,800	100.0

northern Ontario, the territory outside the major metropolitan areas in the Eastern and Northern Ontario Regions and, to a lesser extent, the Central Ontario Region (Tables 16 and 17). In relative terms, the largest reductions will occur in the Eastern Ontario Region outside the Ottawa area, followed by areas in the Southwestern Ontario Region beyond the metropolitan centres of London and Windsor. In the former area, some of the younger age groups may be reduced to 2/3 to 3/4 of their 1971 population level.

(3) *The differences in age structure in various parts of the province will further decrease*. As can be seen from the age structures in various parts of the province shown in Table 17 in 1951, eleven major age groups deviated by more than two percentage points from the provincial average. According to the same criteria, by 1971 there were only eight deviant age groups, and by 2001, it is expected to be reduced to three. Indeed, with the exception of Essex County and Northern Ontario, by 2001 there will be very little relative difference in age structure in various parts of the province.

(4) *The differences in age structure between depressed regions and fast-growing regions will be less of a development issue in the future*.

TABLE 16 (A)

POPULATION CHANGE BY 0-4, 5-19, AND 20-24 AGE GROUPS FOR SELECTED METROPOLITAN COUNTIES AND PLANNING REGIONS, ASSUMPTION "A" POPULATION PROJECTIONS 1971-1986, 1986-2001 AND 1971-2001

TIME PERIODS	SIX COLUC COUNTIES (TORONTO/ HAMILTON)	WATERLOO COUNTY (KITCHENER/ WATERLOO)	REST OF CENTRAL ONTARIO REGION	ESSEX COUNTY (WINDSOR)	MIDDLESEX COUNTY (LONDON)	REST OF SOUTHWESTERN ONTARIO REGION	OTTAWA CARLETON (OTTAWA)	REST OF EASTERN ONTARIO REGION	NORTHERN ONTARIO REGION
0-14 AGE GROUP									
1971-1986	91,000/33%	10,200/43%	38,600/ 51%	12,400/53%	6,300/24%	12,400/ 26%	17,700/48%	13,400/ 28%	20,600/ 28%
1986-2001	12,200/ 5%	4,100/17%	-8,200/-11%	1,100/ 5%	-700/-3%	-9,000/-19%	0/0	-12,200/-26%	-12,800/-17%
1971-2001	103,200/38%	14,300/60%	30,400/ 40%	13,500/58%	5,600/21%	3,400/ 7%	17,700/48%	1,200/ 2%	7,800/ 11%
5-19 AGE GROUP									
1971-1986	72,600/ 8%	15,800/21%	-3,700/- 1%	4,700/ 6%	100/ 0%	-32,900/-18%	-4,200/-3%	-44,000/-23%	-43,000/-16%
1986-2001	178,500/19%	22,500/30%	64,600/ 22%	23,422/28%	11,400/12%	24,900/ 14%	29,000/21%	19,300/ 10%	-1,700/- 1%
1971-2001	251,100/27%	38,300/51%	60,900/ 21%	28,122/34%	11,500/12%	-8,000/- 4%	24,800/18%	-24,700/-13%	-44,700/-17%
20-24 AGE GROUP									
1971-1986	5,900/19%	6,000/24%	40,200/ 54%	7,200/27%	4,900/18%	15,300/ 34%	8,600/19%	13,000/ 27%	20,100/ 29%
1986-2001	30,700/10%	5,900/24%	-1,000/- 1%	4,600/17%	400/ 1%	-5,700/-13%	6,000/13%	-7,800/-16%	-6,800/-10%
1971-2001	89,700/29%	11,900/48%	39,200/ 53%	11,800/44%	5,300/19%	9,600/ 21%	14,600/32%	5,200/ 11%	13,300/ 19%

NOTE: For more detailed information, see Appendixes G(1) to G(4)

XXX/XX% ← Absolute change expressed as a percentage of the 1971 population level for that particular age group.

↓ Absolute change

TABLE 16 (B)

POPULATION CHANGE BY 0-4, 5-19, AND 20-24 AGE GROUPS FOR SELECTED METROPOLITAN COUNTIES AND PLANNING REGIONS, ASSUMPTION "B" POPULATION PROJECTION, 1971 - 1986, 1986 - 2001, AND 1971 - 2001

TIME PERIODS	SIX COLUC COUNTIES (TORONTO/ HAMILTON)	WATERLOO COUNTY (KITCHENER/ WATERLOO)	REST OF CENTRAL ONTARIO REGION	ESSEX COUNTY (WINDSOR)	MIDDLESEX COUNTY (LONDON)	REST OF SOUTHWESTERN ONTARIO REGION	OTTAWA CARLETON (OTTAWA)	REST OF EASTERN ONTARIO REGION	NORTHERN ONTARIO REGION
0-14 AGE GROUP									
1971-1986	107,200/39%	10,000/43%	36,500/ 49%	9,400/35%	5,400/ 23%	11,800/ 25%	14,300/39%	11,600/ 25%	18,700/ 25%
1986-2001	31,200/11%	2,400/10%	-10,700/-14%	-2,500/-9%	-600/ -3%	-11,000/-23%	3,600/10%	-15,100/-32%	-26,600/-36%
1971-2001	138,400/50%	12,400/53%	25,800/ 35%	6,900/26%	4,800/-20%	800/ 2%	17,900/49%	-3,500/ -7%	-7,900/-11%
5-19 AGE GROUP									
1971-1986	109,200/12%	15,200/20%	-14,000/ -5%	-2,700/-3%	-2,400/ -3%	-35,400/-19%	-4,100/-3%	-48,100/-25%	-46,400/-17%
1986-2001	222,700/24%	16,600/22%	64,800/ 22%	10,600/11%	11,500/ 14%	18,100/ 10%	37,400/27%	6,000/ 3%	-12,900/ -5%
1971-2001	331,900/36%	31,800/42%	50,800/ 17%	7,900/ 8%	9,100/ 11%	-17,300/ -9%	33,300/24%	-42,100/-22%	-59,300/-22%
20-24 AGE GROUP									
1971-1986	75,200/25%	6,000/24%	36,400/ 49%	4,700/17%	3,600/ 14%	14,600/ 32%	5,600/12%	11,500/ 24%	19,100/ 28%
1986-2001	48,900/16%	4,000/16%	-6,500/ -9%	700/ 3%	900/ 3%	-8,200/-18%	9,500/21%	-13,900/-29%	-18,200/-26%
1971-2001	124,100/41%	10,000/40%	29,900/ 40%	5,400/20%	4,500/ 17%	6,400/ 14%	15,100/33%	-2,400/ -5%	900/ 2%

NOTE: For more detailed information, see Appendices H (1) to H (4).

XXX/XX% ← Absolute change expressed as a percentage of the 1971 population levels.
↓
Absolute change

TABLE 17

PERCENTAGE DISTRIBUTION OF POPULATION BY MAJOR AGE GROUPS,
MAJOR CENSUS METROPOLITAN AREAS AND REGIONS,
1951, 1971, AND 2001

AGE GROUPS	OTTAWA/ CARLETON (OTTAWA)	REST OF EASTERN ONTARIO REGION	COLUC COUNTIES*	WATERLOO KITCHENER/ (WATERLOO)	REST OF CENTRAL ONTARIO REGION	ESSEX (WINDSOR)	MIDDLESEX (LONDON)	REST OF SOUTHWESTERN ONTARIO REGION	NORTHERN ONTARIO	ONTARIO PROVINCIAL AVERAGE
1951										
0 - 4	11.6	12.1	10.0	11.4	11.4	11.8	10.8	11.3	13.2(H)	11.2
5 - 19	21.8	25.9(H)	19.4(L)	22.0	24.0	23.6	20.5(L)	23.7	27.5(H)	22.7
20 - 24	7.8	7.2	8.0	8.5	7.2	8.0	7.6	7.0	7.7	7.7
25 - 44	31.8	27.2(L)	32.4(H)	30.3	28.7	29.2	30.6	27.2(L)	29.3	30.0
45 - 64	19.1	17.9	21.4	19.4	19.4	20.6	20.2	19.9	16.7(L)	19.8
65 +	7.9	9.7	8.8	8.4	9.3	6.8	10.3	10.9(H)	5.6(L)	8.6
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1971										
0 - 4	7.8	7.9	8.2	9.3	8.3	8.7	8.3	8.1	9.3	8.3
5 - 19	29.8	30.8	27.6(L)	29.5	30.9	30.4	29.2	30.8	33.8(H)	29.6
20 - 24	9.7	9.2	9.1	9.8	7.9	8.6	9.4	7.6	8.5	8.8
25 - 44	26.4	23.2(L)	28.2(H)	26.2	23.9(L)	23.9(L)	25.6	22.4(L)	24.0	25.9
45 - 64	19.2	19.3	19.2	17.6	19.5	18.8	18.9	20.0	17.7	19.1
65 +	7.1	9.6	7.7	7.6	9.5	9.6	8.6	11.1(H)	6.7	8.3
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
2001										
0 - 4	6.7	6.8	7.0	7.9	7.1	8.2	6.6	7.0	7.9	7.1
5 - 19	21.5	23.5	21.4	23.5	24.3	24.7(H)	21.5	23.6	25.5(H)	22.6
20 - 24	7.5	7.5	7.3	7.7	7.4	7.9	7.3	7.4	7.8	7.4
25 - 44	30.4	29.6	30.2	29.6	29.3	29.0	30.2	29.6	29.5	30.0
45 - 64	23.8	22.0	23.5	22.2	21.8	20.9	23.7	21.6	20.5(L)	22.7
65 +	10.1	10.6	10.6	9.1	10.1	9.3	10.7	10.8	9.0	10.2
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

H = Higher end of the scale, exceed the provincial average by 2 or more percentage points.
L = Lower end of the scale, less than the provincial average by 2 or more percentage points.
* The COLUC counties include Wentworth, Halton, Peel, Metro Toronto/York, Ontario, and Durham. These six counties coincides essentially with the Hamilton and the Toronto Metropolitan areas.

One of the main constraints in the development of a depressed region lies in its unfavourable age structure. The population of a depressed region generally includes a higher proportion of the very young and very old than does a fast-growing area, because its middle age groups--its working population--have moved out in large numbers. To assess the significance of this problem, we compared the age structure of the 17 counties which showed net migration losses for the two consecutive periods 1951-1961 and 1961-1971 with those of the 12 counties with net migration gains for the same two periods.* The results (shown in Figure 7) suggest a number of interesting conclusions.

(i) In 1971, about 10.5% of the people of any county which experienced a net migration loss were over 65, while 41.6% were under 20. In contrast, in counties with a net migration gain, only 8.5% of the people were over 65, while 38.8% were under 20. These differences are statistically significant based on the statistical test of differences of means.

(ii) By 2001, the picture will be somewhat different. First, the proportion of people of working age (20-44) in the counties with net migration

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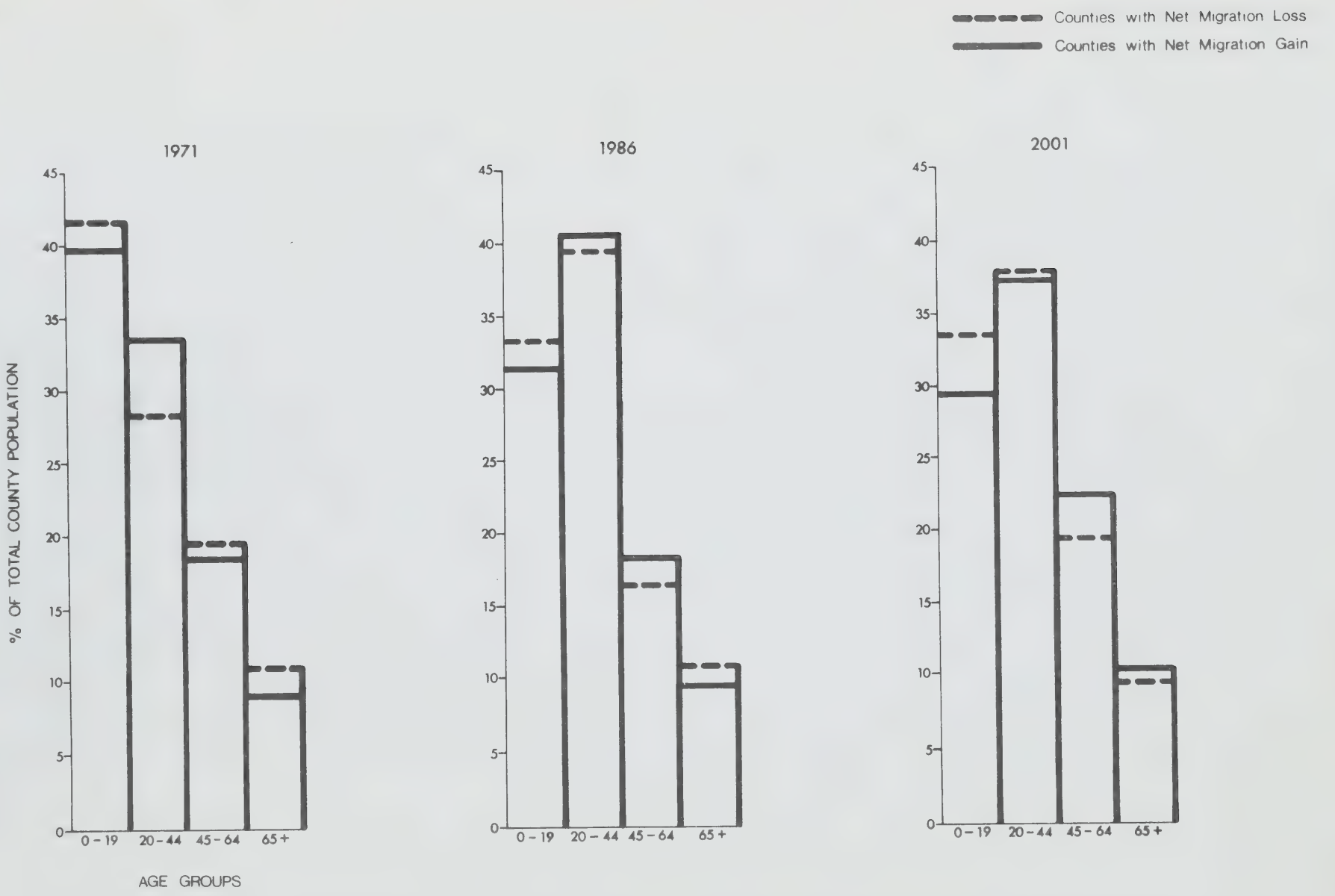
*For specific counties, see Volume I, Ontario's Changing Population.

FIGURE 7: COMPARISON OF POPULATION AGE STRUCTURE
NET OUT - MIGRATION VIS - A - VIS NET IN - MIGRATION COUNTIES



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losses will exceed that of the counties with net migration gains. Secondly, the counties with a net migration loss will have a lower proportion of the older age groups (45 and over) than the counties with migration gain. Perhaps one of the main reasons for this change in the relative concentration of the age groups is that the characteristic age distribution of a county with migration loss is already stabilized in the depressed regions, while the distribution in the fast-growing areas will continue to change as the bulk of the people who made up the post-war baby boom grow older. It should be pointed out that the counties with a migration loss will still continue to have a much larger proportion of their population in the younger age groups (0-19) than the counties with a migration gain.

F. LABOUR FORCE

In certain aspects of planning and development, (e.g., setting regional employment targets, rate of investment, and manpower training), it is just as important to know the size of the labour force as it is to know the size of population and its age composition. Labour Force is defined by the size of the working age population and the participation rates.* The size of the working age population is determined mainly by fertility and migration, whereas the participation rate is influenced by a host of complex factors, such as economic conditions, women's aspirations, early retirement, and attitudes towards education, work, and leisure. A number of these factors are fairly volatile and their impact on the participation rate can change rapidly with time.** This consideration should be kept in mind when viewing the projected information. On the basis of the projected age composition shown in the previous section and projected participation rates, the labour force for Ontario as a whole as well as for various parts of the province has been predicted for 1986 and 2001.

The following are the major observations.

(1) *The labour force will continue to grow faster than the population, but the rate of increase*

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*The "working age population" generally refers to people 14 or 15 years of age and over.

**For example, recent information indicates that, even where the minimum age of retirement has been lowered, many people still stay in the labour force or merely semi-retire because of inflation and other factors. Therefore we assumed that the 55 and over male participation rates would increase slightly. However, the situation could well change if there is a reverse in the economic situation or change in social attitude.

will slow down considerably, especially after 1986. During the next 30 years, the labour force in Ontario is expected to increase at an annual rate of 2.2%, about 50% higher than the 1.4% growth in population (Table 18). However between 1986 and 2001, the labour force will increase at only about half of the 1961-1971 rate (1.6% versus 3.1% per annum).

(2) *The bulk of the labour force growth will come from an increase in the size of the working age population rather than a higher participation rate*. The increased size of the working age population will be responsible for about 2/3 of the labour force growth during 1971-1986 and over 3/4 of the total expected between 1986-2001 (Table 19).

(3) The change in the participation rates will be most pronounced among females in the age groups from 14 to 54 (Appendix I). In contrast, male participation will remain fairly constant, with the exception of age groups between 14 and 24 and, to a lesser extent, those 55 and over. As a result, *the female component of the labour force is expected to increase from about 28% of the total in 1961 to 40% in 2001*--an increase of some 12 percentage points, in spite of a decline

TABLE 18

COMPARISON OF CHANGE IN LABOUR FORCE AND POPULATION, ONTARIO, 1953 - 2001

SIZE					
ITEM	1953	1961	1971	1986	2001
LABOUR FORCE	1,948,000	2,401,000	3,249,000	4,856,800	6,155,800
POPULATION (ALL AGES)	4,920,500	6,236,100	7,703,100	9,753,700	11,646,200
POPULATION (AGE 15 AND OVER)	3,542,800*	4,228,300	5,494,600	7,352,500	9,058,200
ANNUAL RATE OF CHANGE (%)					
ITEM	1953-1961	1961-1971	1971-1986	1986-2001	1971-2001
LABOUR FORCE	2.6	3.1	2.7	1.6	2.2
POPULATION (ALL AGES)	3.0	2.2	1.6	1.2	1.4
POPULATION (AGE 15 AND OVER)	2.2	2.6	2.0	1.4	1.7

* Estimated on the basis of 1951 and 1956 age distribution.

TABLE 19

PROPORTIONS OF GROWTH IN LABOUR FORCE DUE TO CHANGE IN THE SIZE OF WORKING AGE POPULATION AND PARTICIPATION RATES, ONTARIO, 1971 - 1986, 1986 - 2001 AND 1971 -2001

EFFECTS DUE TO CHANGE IN	1971-1986		1986-2001		1971-2001	
	NO.	%	NO.	%	NO.	%
SIZE OF WORKING AGE POPULATION*	1,077,600	67	1,003,400	77	2,081,000	72
PARTICIPATE RATES	530,200	33	295,600	23	825,800	28
TOTAL	1,607,800	100	1,299,000	100	2,906,800	100

* The working age population age refers to people 14 or 15 years of age and over.

in the participation rate of women 55 and over (Table 20).

(4) *The labour force as a whole is likely to be slightly older in the future*. For example, only about 41% of the labour force in 2001 will be between 15 and 34, compared with 46% in 1971 (Table 21). This is largely because there will be a smaller increase in young people in the future. On the other hand, in spite of an increase in population of age 55 and over, the total labour force in these age groups is expected to decline slightly because of continuing withdrawal from the labour force by women in these age groups.

(5) *Labour force participation rates in the metropolitan areas will continue to be higher than elsewhere in the province*. As shown in Appendix J, participation rates in such metropolitan areas as Toronto/Hamilton, Kitchener/Waterloo and London were around 60% in 1971 and are expected to be around 70% in 2001, while the rates for areas outside the metropolitan areas in eastern, southwestern and central Ontario regions are about five percentage points lower: about 55% in 1971 and 65% in 2001.

(6) *The labour force in the metropolitan areas will grow at a much higher rate than in other areas*

TABLE 20

PERCENT DISTRIBUTION OF LABOUR FORCE BY SEX, ONTARIO
1961, 1971, 1986 AND 2001

	DISTRIBUTION OF LABOUR FORCE (%)			
SEX	1961	1971	1986	2001
MALE	72	66	61	60
FEMALE	28	34	39	40
TOTAL	100	100	100	100

TABLE 21

PERCENT DISTRIBUTION OF LABOUR FORCE
BY AGE GROUPS, ONTARIO,
1971, 1986 AND 2001

AGE GROUP	PERCENT DISTRIBUTION		
	1971	1986	2001
15-24	22.8	19.9	19.0
25-34	22.8	27.8	21.5
35-44	21.0	23.3	25.2
45-55	18.4	16.5	21.8
55 AND OVER	15.0	12.5	12.5
TOTAL	100.0	100.0	100.0

of the province. As shown in Table 22 (A), in some metropolitan areas, such as Kitchener/Waterloo and Ottawa, the rate of increase in the labour force will be considerably higher than the provincial average (136% and 117%, respectively, versus a provincial average of 89% during 1971-2001); however, the increase in those parts of eastern and south-western Ontario outside the metropolitan areas will be little more than half of the provincial average (50% and 56%, respectively, versus 89% for the province).

Table 22(B) shows a similar distribution: the labour force in Kitchener/Waterloo and Ottawa will increase by 123% and 100%; in the province, by 90%; and in the rural areas of eastern and southwestern Ontario, by 43% and 47%.

TABLE 22 (A)

CHANGE IN LABOUR FORCE BY MAJOR METROPOLITAN AREAS AND OTHER PARTS OF THE PROVINCE BASED ON ASSUMPTION "A" POPULATION PROJECTION, 1971 - 1986, 1986 - 2001, AND 1971 - 2001

AREA	1971 - 1986				1986 - 2001				1971 - 2001			
	CHANGE IN LABOUR FORCE		CHANGE IN POPULATION (AGE 15 AND OVER)		CHANGE IN LABOUR FORCE		CHANGE IN POPULATION (AGE 15 AND OVER)		CHANGE IN LABOUR FORCE		CHANGE IN POPULATION (AGE 15 AND OVER)	
	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%
COLUC COUNTIES (TORONTO/HAMILTON)	819,500	47	931,000	38	659,000	28	889,000	26	1,478,500	99	1,820,000	75
WATERLOO COUNTY (KITCHENER/WATERLOO)	78,600	61	90,300	50	75,500	39	97,700	36	154,100	136	188,000	105
REST OF CENTRAL ONTARIO REGION	187,200	38	233,500	31	161,800	27	212,800	22	349,000	83	446,300	60
OTTAWA/CARLETON (OTTAWA)	130,300	55	153,100	45	110,300	33	148,800	30	240,500	117	301,900	89
REST OF EASTERN ONTARIO REGION	71,300	25	79,300	19	43,900	15	51,500	10	115,200	50	130,800	31
MIDDLESEX COUNTY (LONDON)	64,100	45	73,800	36	51,900	28	68,600	25	116,000	95	142,400	70
ESSEX COUNTY (WINDSOR)	57,700	41	71,600	33	57,900	32	79,400	28	115,600	95	151,000	70
REST OF SOUTHWESTERN ONTARIO REGION	75,700	25	86,400	21	58,500	19	66,800	13	134,100	56	153,200	36
NORTHERN ONTARIO REGION	123,400	35	144,500	27	80,500	19	105,000	15	203,800	69	249,500	46
ONTARIO	1,607,800	42	1,863,500	35	1,299,300	27	1,719,600	23	2,906,800	89	3,583,100	65

TABLE 22 (B)

CHANGE IN LABOUR FORCE BY MAJOR METROPOLITAN AREAS AND OTHER PARTS OF THE PROVINCE BASED ON ASSUMPTION "B" POPULATION PROJECTION, 1971 - 1986, 1986 - 2001, AND 1971 - 2001

AREA	1971 - 1986				1986 - 2001				1971 - 2001			
	CHANGE IN LABOUR FORCE		CHANGE IN POPULATION (AGE 15 AND OVER)		CHANGE IN LABOUR FORCE		CHANGE IN POPULATION (AGE 15 AND OVER)		CHANGE IN LABOUR FORCE		CHANGE IN POPULATION (AGE 15 AND OVER)	
	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%	NO.	%
COLUC COUNTIES (TORONTO/HAMILTON)	900,500	60	1,058,100	44	825,900	34	1,134,900	32	1,726,400	115	2,193,000	90
WATERLOO COUNTY (KITCHENER/WATERLOO)	78,200	69	89,000	50	60,400	32	78,700	29	138,600	123	167,700	94
REST OF CENTRAL ONTARIO REGION	166,900	40	200,300	27	123,500	21	155,200	16	290,400	69	355,500	48
OTTAWA/CARLETON (OTTAWA)	111,600	54	125,200	37	93,300	29	127,500	27	204,900	100	252,700	74
REST OF EASTERN ONTARIO REGION	63,800	28	66,100	16	35,700	12	41,500	9	99,500	43	107,600	26
MIDDLESEX COUNTY (LONDON)	58,600	48	65,100	32	51,000	28	69,400	26	109,600	89	134,500	67
ESSEX COUNTY (WINDSOR)	44,700	37	50,100	23	31,600	19	40,600	15	76,300	63	90,700	42
REST OF SOUTHWESTERN ONTARIO REGION	72,300	30	78,700	19	41,000	13	43,500	9	113,300	47	122,200	29
NORTHERN ONTARIO REGION	118,300	40	133,600	25	32,500	8	34,100	5	150,800	51	167,700	31
ONTARIO	1,614,900	50	1,866,200	34	1,294,900	27	1,725,400	23	2,909,800	90	3,591,600	65

CHAPTER III: POPULATION IMPACT OF REGIONAL PROJECTS

A. AN ERA OF LARGE PROJECTS

The demographic projection presented in the previous section was arrived at on the assumption that there will be no major intervention in current trends in the form of either development projects or special government policies.* In fact, a number of major projects and policies have been proposed or already set in motion (Figure 8). Some of the projects are so large that, together, they may exert a certain effect, not only on the national and provincial economies, but also on the eventual outcome of the development pattern of the province. For example, the total investment in the Nanticoke complex, the Sarnia petrochemical project, some of the Hydro generating station development, and the new North Pickering New Town will exceed four billion dollars. Labour requirements (both operating and construction) will rise to between 20,000 and 25,000 by the mid-1980's.

The effect of these development projects will extend beyond the provincial and even beyond the national boundary. A full treatment of the impact of even some of these projects would be a very complex task. It entails investigations into such aspects as the capital market, balance of payments, inflation, materials, manpower, government budget priorities, patterns of development, and the structure

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*The exception was the population of the urban places within the COLUC area which, as mentioned earlier, were essentially targets.

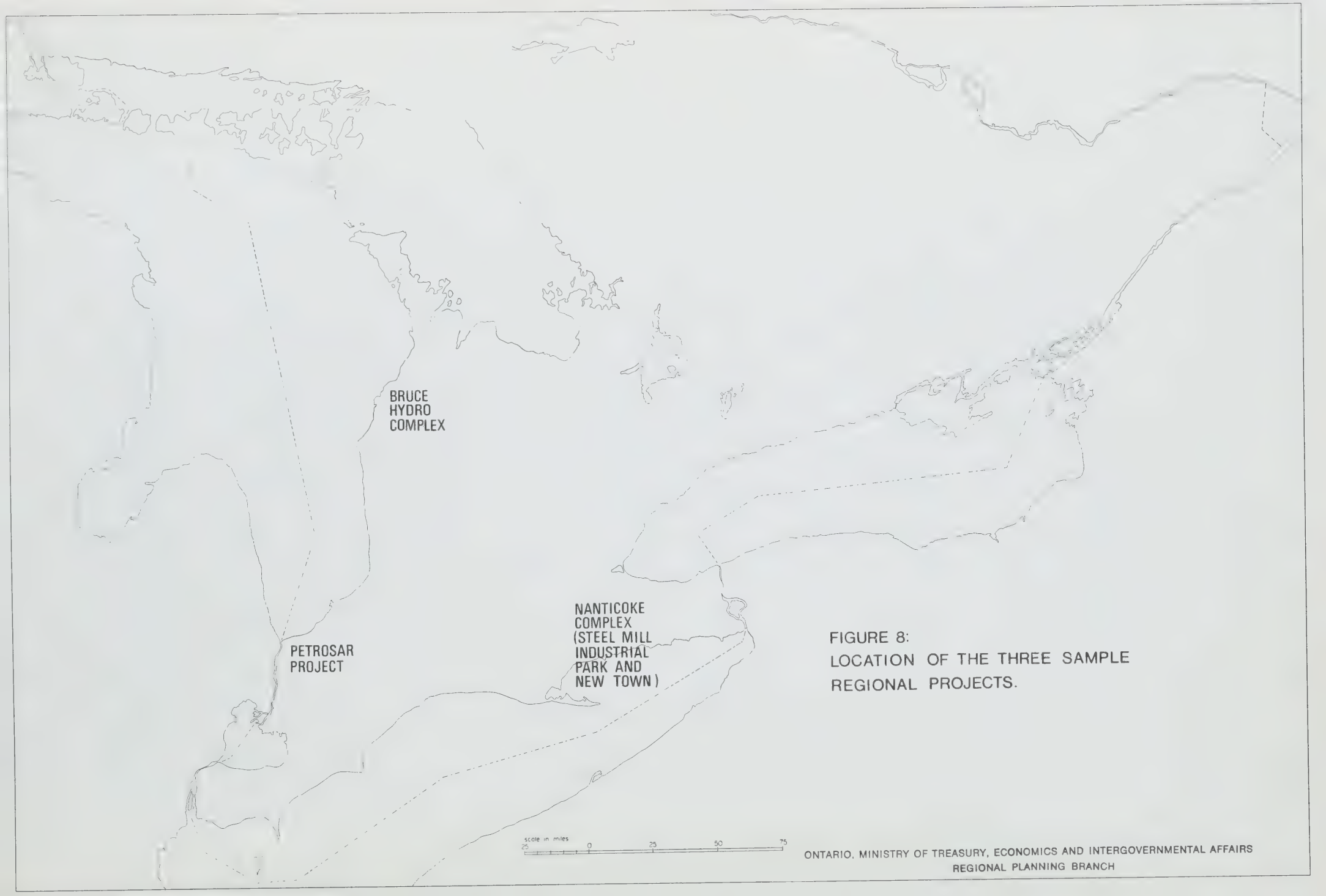

FIGURE 8:
LOCATION OF THE THREE SAMPLE REGIONAL PROJECTS.

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of government. A change in some of these factors could very well alter the size and timing of the projects. Given the mandate set out for this study, the resources available, and the need to produce some immediate, tangible results applicable to subsequent planning efforts, we decided to confine the present undertaking to a single objective--that is, to assess the extent of change in the population distribution in various parts of the province in which these projects are situated. Conditions in 1986 and 2001 were emphasized, and the main concern was the effect of the operating employees (i.e., permanent staff), on the region although some indication of the effects of construction is given, too.

B. STUDYING THREE SAMPLE PROJECTS

Impact studies were carried out on only three major projects--the Nanticoke industrial complex, the Petrosar project in Sarnia, and the Hydro developments at Douglas Point on the Bruce Peninsula. These projects were selected on the basis of the following criteria:

(1) The probable impact on the urban system in the area. Employment size of the project was not the only selection criterion, although it was an important one. Location and the "extraordinary" nature of the projects also entered into

the consideration.*

(2) Availability of employment information.

A number of projects (e.g., The North Pickering New Town and Metro Centre), in spite of their importance, were excluded from the analysis because 1) some of them have already been taken into consideration in the COLUC exercise and 2) the commitment on some of the projects still appears somewhat uncertain.

The expected impact on a given centre will be measured by the centre's population demand, and this in turn will be determined by the location of the centre and the behavioural characteristics of the work force in the project (e.g., commuter pattern). Note that the projected impact will not necessarily correspond with the growth increment over and above the projected trend.

Moreover, the figures in this report should also be distinguished from target figures meant to achieve a set of social, economic, and environmental goals,

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*For example, many of the projects represent essentially normal growth or expansion (offices, shopping centres, hotels, etc.) and do not really fall into the category of large "extraordinary" projects. Secondly, location matters: a new hydro generating station which employs, say, about one or two thousand people could have a substantial impact on its locale, even though the same number of employees would represent only a fraction of Metro Centre's jobs.

such as called for by a number of other studies.*

The population impact of the three projects can be expressed in terms of three main questions.

- What change in total employment and population will result from each of the projects?
- Where will the labour force come from?
- How will the resident worker population be distributed among various urban places in the locale?

C. EMPLOYMENT AND POPULATION GENERATED**

(1) The Nanticoke Industrial Complex

The Nanticoke industrial complex consists of four components: the Hydro generating station, the Texaco refinery, the STELCO steel plant, and the associated industrial park.

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*An example would be the population figures contained in the Threshold of Change No. 1: Land and Development, Haldimand-Norfolk Study, Ministry of Treasury, Economics and Intergovernmental Affairs, Ontario, 1971.

**It is important to note that in each of the three cases examined here, the data on the scale of the project were those available to this study as of August 1, 1975. The actual outcome, and even the plans for the projects, may change from the figures reported here. However, given the validity of the analytical model, differences in the actual scale of a project affect only the time at which the estimated impact will be felt.

Construction at Hydro and Texaco is expected to be completed around 1977/1978. In the case of STELCO, the labour force requirements for construction and operation are expected to overlap, as construction will be carried out in a number of stages and continue for some twenty years. Within the next three or four years, however, even excluding the labour required for infrastructure projects in the area (housing, roads, etc.), the total labour force for construction will reach a peak of 3000 to 4000 people. By 1986, the construction labour force is likely to fall to between 1000 and 2000 and is expected to stay at that level until 1990. However, this decline in the labour force needed for construction will be more than compensated for by the increased operating staff in both the STELCO plant and the associated industrial park.

The long-term number of people who will be employed at the STELCO steel mill and, particularly, in the industrial park, is still not known precisely, in spite of the fact that a number of attempts have been made since the late 1960's to assess this probable employment. As can be seen from Table 23, the recent 2001 employment forecast for the steel mill (Regional Planning Branch: 10,000 jobs) is only about half of the original estimate made five years ago. (Haldimand Study: 19,500 jobs). Substantial discrepancies also exist among the different forecasts for the industrial park. After examining the various studies and on the basis of recent

TABLE 23

EMPLOYMENT AND POPULATION ESTIMATES FOR THE STELCO AND THE ASSOCIATED INDUSTRIAL PROJECTS, HALDIMAND-NORFOLK, 1986 AND 2001

ITEMS	HALDIMAND STUDY[1]		BECHTEL REPORT[2]		FIRST STELCO SUBMISSION[3]		SECOND STELCO SUBMISSION[4] (PROCTOR REDFERN)		IBI/FMP[5]		WOODS GORDON[6]		REGIONAL PLANNING BRANCH[7] ASSUMPTION "X"		REGIONAL PLANNING BRANCH[7] ASSUMPTION "Y"	
	1986	2001	1986	2001	1986	2001	1984	2001	1981	2001	1986	2001	1986	2001	1986	2001
STELCO STEEL MILL	9,000	19,500	14,900	NOT AVAILABLE	9,000	19,900	4,000	10,000	3,500	NOT AVAILABLE	4,200	NOT AVAILABLE	4,200	10,000	4,200	10,000
STELCO INDUSTRIAL PARK	2,800	8,300	7,200				2,500-4,000	15,000-20,000	2,000L 2,400M 2,900H		5,800		5,400	14,100	4,400	13,200
OTHER INDUSTRIES[8]							900	900	700		700		700	700	700	700
TOTAL BASIC[9,10] EMPLOYMENT	11,800	27,800	22,100				7,400-8,900	25,900-30,900	5,200L 5,600M 6,100H		11,700		10,300	24,800	9,300	23,900
BASIC/NON-BASIC EMPLOYMENT RATIO	1:1.20	1:1.85	1:1.46				1:1.56	1:1.56	1:0.80		1:0.8		1:0.8	1:1.2	1:0.8	1:1.2
NON-BASIC EMPLOYMENT	14,160	51,500	32,300				11,500-13,900	40,400-48,200	3,800L 4,100M 4,600H		16,400		8,240	29,760	7,440	28,680
TOTAL EMPLOYMENT[11]	25,960	79,300	54,400				18,900-22,800	66,300-79,100	8,900L 9,700M 10,700H		19,300		18,540	54,560	16,740	52,580
POPULATION/ EMPLOYMENT MULTIPLIER	2.74	2.60	2.80				2.80	2.80	2.50		2.50		2.12	1.94	2.12	1.94
TOTAL POPULATION	71,130	206,200	152,300				52,900-63,800	185,600-221,500	22,000L 24,300M 26,800H		48,300		39,300	105,900	35,500	102,000

NOTES:

1 Derived from Threshold of change No. 1, Haldimand-Norfolk Study, Ministry of Treasury, Economics and Intergovernmental Affairs, 1971.

2 Derived from An Evaluation of Urban System, Haldimand-Norfolk, Vol. I, Bechtel Ltd., 1970.

3 Dated 1973

4 Dated 1974

5 Derived from the Housing Policy Study for The Region of Haldimand-Norfolk, Peat, Marwick and Partners and IBI Group, 1975.

6 Derived from the Basic Conceptual Alternatives, A Development Strategy for the Regional Municipality of Haldimand-Norfolk, Woods Gordon & Co., 1975

7 Assumption "X" is based on the premise that the density in the industrial park will increase from 3.25 persons/acre to 8 persons/acre in 10 years with an average rate of development of 100 acres per year up to a maximum of 1,800 acres.

Assumption "Y" differs from Assumption "X" only in the rate of density change which will change from 3.25 persons/acre to 5.7 persons/acre in 10 years and reaching a maximum of 8 persons/acre. For futher details see Appendixes K and L.

8 Texaco and Hydro projects.

9 "Basic" employment refers to the activities which produce goods and services for export to firms and individuals outside the defined area. "Non-basic" employment refers to goods and services which support the "basic" activities.

10 Operating employees only. As mentioned in the text, the number of construction workers would number between 1,000 and 2,000 for the steel mill, but the development implications (e.g., housing) for these construction workers differ fairly markedly from those of the permanent employees.

11 The population growth induced by the STELCO and the associated industrial projects only. The ultimate employment in the steel mill and the industrial park is estimated at about 11,000 and 14,400, respectively.

information, we decided to use two forecasts (Assumptions "X" and "Y").* In both cases, the steel mill was assumed to reach an employment level of about 10,000 by 2001, whereas the industrial park in 2001 is expected to have about 14,000 jobs under Assumption "X" and 13,000 under Assumption "Y."** This would result in an employment ratio between the steel mill and the associated industrial park of about 1:1.4 (under Assumption "X") and 1:1.2 (under Assumption "Y"). In 1971, the employment ratio between primary metal manufacturing industries in Hamilton (mainly STELCO and DOFASCO Steel Mills) and all other manufacturing industries in the city was about 1:1.4. Thus, if we assume that the industrial profile of Haldimand-Norfolk in the future will bear a high degree of resemblance to present-day Hamilton, an assumption which does not appear unreasonable, then the 13,000-14,000 employment forecast for the industrial park can be taken as a reasonably acceptable basis for assessing the development implications, although one could argue that the figures may still be slightly on the high side.***

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*Really, assessing the probable employment in the steel mill and the associated industrial park would require a major study of the future steel market, future processing technology, probable changes in productivity rates, the types of major steel-consuming and supplying secondary manufacturing industries, together with an appreciation of the comparative advantage for these related industries to locate in the Haldimand-Norfolk area. However, such a task is beyond the terms of reference of this population study.

**For a more detailed description of the assumptions and calculations, see the Footnotes to Table 23 and Appendices K and L.

***For a comparison of the employment ratio between the steel mill and other manufacturing industries as developed by various studies, and the 1971 Hamilton condition, see Appendix M.

The jobs discussed thus far are generally referred to as "basic" employment.* That is, these are the activities which produce and distribute goods and services for export to firms and individuals outside a defined area. It is these industries which bring new money into the community and region and thus hold the key to the area's economic strength. Supporting this basic employment is a host of other activities and services--shopping, banking, etc.--which supply goods and services to people within the local or regional economic area. The employment created by these activities and services is termed "non-basic." The ratio of basic to non-basic employment varies from region to region. It is influenced by a number of factors, including income levels, spending patterns, the size and characteristics of the community and its relationship to its hinterland. In all the earlier studies, the basic:non basic ratios used ranged from 1:1.2 to 1:1.45 for 1984 and from 1:1.56 to 1:1.85 for 2001.** Having compared these ratios with those compiled for other cities, we felt that the proportion of non-basic employment used earlier might be too high, and the value adopted by the recent studies (e.g., IBI, PMP, and Woods Gordon consulting reports) is more consistent with conditions in Haldimand-Norfolk.*** Note that the proportion of

*For a more detailed description of the "basic" and "non-basic" concept, see Tiebout, C. M., The Community Economic Base Study, Committee for Economic Development, 1962, and Weimer, A. M., and Hoyt, H., Principles of Real Estate, New York, The Ronald Press Co., 1960.

**The earlier studies are the Haldimand-Norfolk Report, The Bechtel Report and the Second STELCO Submission, See Footnote to Table 23 for further descriptions.

***For information on basic:non-basic employment ratios derived from economic based studies conducted for other cities, see Appendix N.

non-basic employment is expected to grow progressively higher.* Implicitly, this increase means that the economy and the community are becoming more mature and self-sufficient; i.e., the people in the Haldimand-Norfolk area will be less dependent than they are today on outside centres such as Hamilton, Brantford, and London for such services as specialized shopping, higher education, or health facilities; they will have them available locally. Accordingly, a basic:non-basic employment ratio of 1:0.8 and 1:1.2 was assumed for 1986 and 2001, respectively. On the basis of these multipliers, it is expected that the total employment due to the complex will amount to about 24,800 under Assumption "X" and 23,900 under Assumption "Y."

The information on total employment was then translated into equivalent population by employing a population/employment multiplier derived from the labour force analysis discussed in the previous section.** Using a multiplier of 2.12 for 1986 and 1.94 for 2001, the total population generated by the industrial complex will be between 35,000 and 40,000 by 1986 and about 100,000 by 2001.***

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*The present basic:non-basic employment ratio in the Haldimand-Norfolk area is about 1:0.44.

**For further details about the multipliers, see Appendices O and P.

***The progressive lowering in the population/labour force ratio is largely a reflection of increasing labour force participation rates in the future. It should be pointed out that the 100,000 people represent the impact of the project only. To obtain the total population, one must take into account the population growth due to trends. In the case of Haldimand-Norfolk, by 2001 the population due to trends will be about 120,000 under Assumption "A" and 105,000 under Assumption "B." See Appendix A (1).

(2) The Sarnia Development

The major component of this development is commonly known as the SOAP, or Petrosar Project, jointly owned by Polysar Ltd., Du Pont of Canada Ltd., and Union Carbide Ltd.* The Petrosar project is an integrated petrochemical complex which will produce such products as fuel oil and gasoline, as well as a range of chemical feedstocks (e.g., naphtha, ethylene, etc.) aimed at serving a world market. By 1977, the direct employment created by the entire Petrosar complex will amount to about 750.

In addition, a number of firms are planning to locate or expand their existing facilities in the area. With some additions in such related manufacturing industries as machine shops and piping and engineering firms, the total basic employment created by all these projects (including Petrosar) is expected to reach 1500 by 1977/1978.** However, some of the industries may develop in the Sarnia area as part of the growth trend, whether or not the Petrosar complex is introduced--a slightly different situation from that at Nanticoke. On the other hand, a number of projects have been cited as "possibilities." Some of the firms mentioned included Nissan Automobile Co. (Canada), Canadian Industries Ltd., Anderson's Ltd., and Canadian Motor Industries Ltd. (a holding company of Toyota).*** Since none of them have made any definitive

*SOAP stands for Sarnia Olefins and Aromatics Projects.

**For source, see The Sarnia Growth Study, a report prepared by the Regional Planning Branch, Ministry of Treasury, Economics and Intergovernmental Affairs, August, 1974.

***Ibid.

plans or commitments, however, it would be impossible and in fact somewhat unrealistic to include them in the analysis at this point.

Since there is already a substantial service sector existing in the Sarnia community, it was felt that the basic: non-basic ratio resulting from the new industrial projects is unlikely to exceed a value of 1:1. On this basis, together with an assumed population/employment multiplier of 2.3, the induced population is expected to be around 6700 (Table 24).

Judging from the estimated total employment and population created by the Petrosar project and the related industrial projects, one could contend that the long-term impact on the urban system in the area will be insignificant, especially in view of the fact that part of the 7000 additional population growth is "trend" development, anyway.

(3) Bruce Hydro Development

For the next ten years or so, Ontario Hydro plans to construct a total of about 15 to 20 power stations to meet the long-term electricity requirements in the province. These stations will be located in various parts of southern Ontario, but most sites will be adjacent to one of the Great Lakes because of the large amount of cooling water they require. These stations are interconnected to form a provincial transmission grid. Some of them have already been completed, while construction has yet to begin on others. By the mid-1980's most of the stations should be completed.

TABLE 24

EMPLOYMENT AND POPULATION ESTIMATES,
THE SARNIA INDUSTRIAL DEVELOPMENT,
1977-1978

ITEM	1977/1978
TOTAL BASIC EMPLOYMENT	1,460
BASIC: NON-BASIC EMPLOYMENT RATIO	1:1
TOTAL EMPLOYMENT GENERATED	2,920
POPULATION/EMPLOYMENT MULTIPLIER	2.3
∴ TOTAL INDUCED POPULATION	6,700

Of the various station projects, one of the most extensive developments is in the Bruce Peninsula. Together, it consists of five units. The project will take about ten years to complete. During the height of activity, which is expected to occur around 1977/1978, it will employ about 7,500 people in its combined construction and operating labour force (Appendix Q). When the entire project is fully in operation, around 1983/1984, it will still need 2000 permanent employees.

Perhaps the most crucial consideration of this project is the fact that it is located in an area where there is hardly any large urban centre to absorb the impact. The situation is very different from that of the Nanticoke project, where a new town has been proposed as part of the overall development, or the Petrosar project, with nearby Sarnia as a reasonably large centre. At present, the closest large urban centre to the Bruce power project is Owen Sound, which had a population of about 18,500 in 1971 and is nearly an hour's driving time from the site. Thus, even though it will create much less employment than, say, STELCO, the Bruce hydro project could have a more significant impact on the urban system in its part of the province.

Because of the locale and the type and the size of the development, it is unlikely that the development will attract very sophisticated services. Accordingly, a basic:non-basic employment ratio of 1:0.8 was used. This,

together with an assumed population/employment multiplier of 2.12, will produce a population size of about 7300 (Table 25).

TABLE 25

EMPLOYMENT AND POPULATION ESTIMATES,
THE BRUCE HYDRO DEVELOPMENT
1986

ITEM	1986
TOTAL BASIC EMPLOYMENT	1,900
BASIC: NON-BASIC RATIO	1:0.8
TOTAL EMPLOYMENT GENERATED	3,420
POPULATION/EMPLOYMENT MULTIPLIER	2.12
∴ TOTAL INDUCED POPULATION	7,300

D. EFFECT ON THE POPULATION LEVEL IN OTHER PARTS OF ONTARIO

All the three projects analyzed here--Nanticoke, Petrosar and the Bruce Power Development--are located in the southwestern part of the province. Since these projects were announced, their probable effects have been the subject of a number of studies, including, for example, the Sarnia Growth Study, the Douglas Point report and a host of documents prepared for the Haldimand-Norfolk area.* Many of these materials provided a fairly comprehensive analysis of the problems associated with land use and the environment, together with suggested policies which the government and private enterprise should pursue. However, nearly all the studies are directed toward a specific and fairly limited geographical territory and--perhaps because of their terms of reference--they did not really address a number of the more fundamental questions in regional development. Will these projects bring enormous economic growth and benefits to their areas over and above the projected level of trend development? Will these additional employment opportunities in southwestern Ontario mean mass emigration from such places as eastern and northern Ontario? Comprehensive and definitive answers to these questions are elusive at this stage. The main emphasis of the discussion which follows is to provide a perspective through which to view some of these issues. The findings then can be used as part of the groundwork for the development of a co-ordinated policy

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*For a list of the major Haldimand-Norfolk studies, see footnotes to Table 2 3.

to deal with the whole realm of extraordinary projects and formulation of overall provincial strategy.

As can be seen from Table 26, the population resulting from the three projects discussed so far amounts to a total of about 53,000 by 1986 and about 120,000 by 2001.* Even if we assume the entire 120,000 people as extra growth, that is, over and above the projected trend, the amount represents only an additional 6% population increase in the entire southwestern part of the province west of the COLUC area during the next thirty years.** Thus, from the standpoint of the developmental impact in southwestern Ontario, the effect will not be as substantial as one might imagine.

What would the development implications for eastern and northern Ontario be? This paper contends that the projects do not necessarily imply massive emigration from these two regions. The bulk of the labour demand created by the three projects is more likely to be met by migration from a number of areas within central and southwestern Ontario, as well as by an increase in immigration from outside the province. The proportion coming from different areas will be influenced by the interplay of a number of economic, social, and institutional factors and the

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*The figures are based on Assumption "X," which represents a faster rate of employment increase than Assumption "Y." Therefore, the effect will be slightly lower if the latter assumption is used.

**As will be discussed later, we might experience a slightly lower trend projection than shown because of the arrival of the three projects.

TABLE 26

PROPORTION OF POPULATION GENERATED BY THE NANTICOKE, PETROSAR, AND BRUCE HYDRO DEVELOPMENTS AS A PERCENT OF CHANGE IN TREND POPULATION IN OTHER PARTS OF ONTARIO, 1971 - 1986 AND 1971 - 2001

PROJECTS	POPULATION GENERATED	
	1971-1986	1971-2001
NANTICOKE(1)	39,200	105,900
PETROSAR(2)	6,700	6,700
BRUCE HYDRO DEVELOPMENT	7,300	7,300
TOTAL FOR PROJECTS	53,200	119,900

AREA	POPULATION CHANGE			
	1971-1986		1971-2001	
	TREND	TREND PLUS PROJECTS	TREND	TREND PLUS PROJECTS
SOUTHWESTERN PART OF ONTARIO(3)	21%	23%	37%	43%

NOTES:

(1) Based on Assumption "X" estimate which represents the higher end of the forecast.

(2) As mentioned in the text, this population total included some of the expected trend development.

(3) Refers to the whole of Southwestern Ontario Planning Region plus the counties of Brant, Haldimand, Norfolk, Niagara, Waterloo, and Wellington, i.e., the whole of Southern Ontario west of the COLUC area. In 1971 the population in this area was 1,977,200 and the trend population for 1986 and 2001 (Assumption B) is 2,387,500 and 2,710,700, respectively.

specific requirements of the projects.

(1) The Supply Situation in Ontario and Other Provinces*

There is no government restriction on the movement of people within Canada. Historically, people have moved extensively from areas of high unemployment to areas where there was a high demand for labour. Except for a few isolated areas, the present disparities in the balance between labour supply and demand within Ontario and between provinces are not really significant. Unless there is a major depression, many parts of Ontario and a number of other provinces will not have a surplus of labour in the future. Furthermore, as shown in Volume I, in the past there has been a net emigration from eastern and northern Ontario to the southwestern and central regions. But the effects on over-all population distribution were not really appreciable. The previous analysis showed that, over the last 30 years, 21 counties in Ontario showed a net migration loss: the total amounted to just slightly above 150,000 people.** Thus it seems likely that the three development projects described above will

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*Two of the more detailed studies on the labour supply situation are The Construction Labour Study: Lake Erie Development by Canadian Bechtel Ltd. and Subsequent Evaluation Study by R. Joseph of the Department of Manpower and Immigration, 1973.

**Wong, C., op. cit.

induce some additional emigration from eastern and northern Ontario, but not on a massive scale. The net effect on these areas might be a somewhat lower unemployment rate and accordingly a slightly reduced trend population projection for these two regions.*

(2) Different Wage Levels

Availability of employment alone is not enough to induce people to move. Equally important is the wage level. In fact, even in a tight labour market, the demand can still be met if sufficiently high wages are offered. The case of the Ford Company, which located its automobile assembly plant near St. Thomas in the late 1960's, testifies to this view.**

In 1965, Ford announced its intentions to erect a highly automated assembly plant for a single model of car near St. Thomas, Ontario. By 1969,

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*If the northeastern Ontario development plan and the eastern Ontario strategy currently being prepared become reality and are successful in their efforts, the conclusion cited here will change, especially regarding the impact on the population levels.

Also, we assumed here that there will be no prolonged stagnation or major downturn in the economy of these two regions (e.g., a major slump in the resource industries).

**Janes, S. H. Impact Upon the Local Labour Force of a Large Manufacturing Installation - the Ford St. Thomas Assembly Plant, Department of Urban and Regional Planning, University of Toronto, 1970, unpublished research report.

the installation had created nearly 3,000 jobs. Before Ford started hiring, the London/St. Thomas area was not generally considered to have a labour surplus, although there was some immigration from both Elgin and Norfolk counties in 1961-1971. In fact, there was some shortage of skilled tradesmen in the area. By offering higher salaries and by the "magnetism of a big and new industry," Ford attracted a large number of experienced workers from the immediate region. Nearly three-quarters of the work force (over 2000) left their former employment in the area to join Ford. The most extensive labour drain occurred within a region extending up to slightly over half an hour's travel time from the plant.

Ford's experience could well be duplicated by any of the three projects discussed here, since the wage levels offered by the projects are generally higher than those offered by many of the the other industrial groups. According to the specific employment skills required, the projects may siphon off existing labour from manufacturing industries, especially those that pay the least, as well as from the agricultural and service sectors. The industries most severely affected will probably be those located within a travel time of three-quarters of an hour from the plant site, since the workers

will then be able to take up the new employment without relocation of residence. The influence may extend to some of the larger centres just outside this boundary, such as Welland, Brantford, Hamilton, Woodstock, etc. The net result could be that centres within, say, 30 to 40 miles from the site of the projects would gain in population through the influx of workers for the new plants. Paradoxically, the actual trend population could be less than the projected levels, if some of the existing industries, unable to compete with the new project, decide to relocate elsewhere. Also, inflated housing prices and wage levels in the community could deter other new industries from moving into the area, as they otherwise would have done.

(3) The Skills Required and the Company's Recruitment Policy

These factors, too, could influence the population impact in different areas. For example, in their attempt to recruit workers, Ford concentrated mainly on the area within a 50-mile radius of the site of the plant.

(4) Housing and Other Living Amenities

Reasonably priced housing at the appropriate time, together with a high level of living amenities

(recreation, shopping, etc.) are powerful inducements to labour. Their effect varies, according to whether or not the potential workers live within commuting distance. For those who live too far away to commute daily, housing and amenities are important in deciding whether to accept the new employment with its higher wages, because the decision means moving house. Thus, if suitable housing is not available near the recruitment project, recruitment will reduce the population outside the daily commuting zone less than it would if nearby housing were plentiful.

For those who live within the commuting zone, the fact that they can take up the new employment opportunities without switching residence will further reduce the supply of housing for workers wishing to move in. Unless there is a parallel increase in the housing stock, housing prices will go up. Existing industries trying to attract replacement labour will then have to contend with higher housing costs for their workers, as well as the higher wages the project pays. The overall effect again will be to reduce the flow of workers from other parts of the province into the area.

(5) The Immigration Policy

In the past, a major source of labour was immigrants

from abroad. Presently, about 20% of the work force in the Hamilton STELCO plant are new Canadians (i.e., not born in Canada).* But the number of immigrants in the blue-collar categories--generally the major component of industrial workers--has been declining compared with white-collar and professional workers.

(6) The Social and Other Factors

Aside from economics and other considerations such as housing and the company recruitment policy, the social and cultural aspects of a community also influence the mobility of workers, especially those travelling long distances and/or moving from one type of living environment to another (e.g., from remote or depressed regions to, say, larger metropolitan centres). The Federal government's experience in relocating surplus coal miners in the Maritime provinces was a case in point.** Canadians are often considered highly mobile, since they move on the average every five

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*The importance of immigration to the construction labour supply is far more pronounced. Between 1951 and 1973, of the 143,000 workers entering the seven key construction trades in Canada (excluding Quebec), three-quarters were immigrants from abroad. See Ontario Statistical Reviews, 1967 and 1972.

**Another specific example occurred a number of years ago, when STELCO took over a Newfoundland steel plant and wanted to close it down. Subsequently, very few Newfoundlanders were willing to relocate in Hamilton when offered jobs there.

> years, but the bulk of the moves, especially among immigrants from abroad, are within the same metropolitan areas. The crux of the matter is that most people are reluctant to move even in the face of prolonged unemployment hardship. The lack of interest must stem at least partially from people's erroneous impressions about relative economic conditions elsewhere.* According to some studies in U.S.A., half the residents of depressed areas think that conditions where they now live are just as good as or better than anywhere else.** For some, attachment to a certain way of life in an area, access to specific cultural and religious facilities, family and community ties are more important considerations than economic gains.

One can see from the above analysis that the issue of where the labour will be drawn from is very complex and elusive. The outcome will be influenced by a number of factors, including policy decisions by the government and the companies concerned, recruitment options, immigration policy, timing of the new town, the nature of local development policies in the surrounding areas, etc. While it is impossible and somewhat unrealistic to predict

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*Morrison, P. S., Migration from Distressed Areas: Its Meaning for Regional Policy, Rand Corporation, 1973.

**Ibid.

definitive numerical population changes from the projected trend levels in various parts of the province at this time, some general remarks can be made on their probable effect (Table 27). This information will at least serve to clarify some of the divergent views and to set the stage for a more detailed and comprehensive analysis on the whole issue of "extraordinary" projects and provincial development strategy.

TABLE 27

SUMMARY OF PROBABLE POPULATION IMPACT ON VARIOUS PARTS OF ONTARIO AS A RESULT OF DEMAND FOR LABOUR BY NANTICOKE, PETROSAR AND BRUCE HYDRO DEVELOPMENT PROJECTS

AREAS	SCENARIO
Northern and Eastern Ontario	- would probably induce some additional out-migration from these two regions,* but not much. - net effect might reduce the unemployment rate somewhat and accordingly the levels of projected trend population.
Areas within daily commuting distance of the projects (e.g. within a commuting radius of 30 to 40 minutes from the plant site).	- would experience an increase in population due to influx of workers attracted by the new work opportunities. - but the effect might be offset somewhat by the relocation of some existing industries or new firms which would otherwise be locating there.

* This assumption excludes the consideration of any additional government development effort in Eastern and Northern Ontario.

TABLE 27
(cont'd)

SUMMARY OF PROBABLE POPULATION IMPACT ON VARIOUS PARTS OF ONTARIO AS A RESULT OF DEMAND FOR LABOUR BY NANTICOKE, PETROSAR AND BRUCE HYDRO DEVELOPMENT PROJECTS

AREAS	SCENARIO
Areas just outside the immediate daily commuting zone. For the Nanticoke project, they would embrace such centres as Woodstock, Brantford, Welland, London, Hamilton, and Kitchener/ Waterloo. For Bruce Hydro, include Owen Sound and other centres, and for Petrosar include Wallaceburg, Chatham, etc.	- situation would be very fluid and unpredictable, - probably would have some additional longer distance commuters living in these areas, - such factors as housing, level of interconnected transportation services and community facilities would have a great influence on eventual impact. - loss of population might be offset by some increase in new industries attracted by these projects, because these areas are just outside the highly competitive zones, - projected DOFASCO and moderate STELCO expansion in Hamilton facilities up to end of 70's would probably enable Hamilton to achieve its level of trend projection. But it is doubtful it would reach the population targets called for by the COLUC Task Force unless incentives are provided.

TABLE 27
(cont'd)

SUMMARY OF PROBABLE POPULATION IMPACT ON VARIOUS PARTS OF ONTARIO AS A RESULT OF DEMAND FOR LABOUR BY NANTICOKE, PETROSAR AND BRUCE HYDRO DEVELOPMENT PROJECTS

AREAS	SCENARIO
Toronto and vicinity	- the impact on population level would not be significant because of the large increase expected through "normal" population growth.
Areas outside Ontario	- net migrations to Ontario would probably rise slightly beyond the 50,000 per year level assumed in the trend projection. But the future provincial and national economy, together with the kind of immigration policy pursued, would be major factors determining the population level.

E. GEOGRAPHICAL DISTRIBUTION OF RESIDENT WORKER POPULATION

Assuming the labour demand of these projects is met, how will the resident working population be distributed among various local centres? Note that our main concern here is to obtain an over-all appreciation of the impact these projects will have on the urban system, rather than to calculate the finite numerical population increase due to the projects. In particular, a number of assumptions should be kept in mind in using the information given below.

(1) Assumptions

- The results reported here reflect the projects' demands on the centres, given a set of locational and behavioural characteristics of the workers. The results will be affected by such factors as housing supply--in particular, the timing of the development of Townsend (i.e., the new town)--together with local planning policies, etc.

- In arriving at the results, we assumed the same worker behavioural characteristics for all three projects as those exhibited by the Ford workers in St. Thomas. This assumption is not unreasonable, since the employment characteristics are very similar, as are the locational environments of the plants, especially that of the Nanticoke project (i.e., a blue-collar labour force associated

with a large industrial installation in a predominately rural area).

- The results do not necessarily represent the "extra" population growth over and above the projected demographic trend for the centres. As mentioned earlier, the centres may lose some of their existing industries because of the projects. Also, new industries implicitly assumed as part of the normal trend growth may locate elsewhere. The combination of these two factors could result in a trend growth lower than that originally projected. For this reason, the trend population shown in Appendices A to D and the resulting distribution of the resident worker population probably represent the upper limit of the project's demand.

(2) Methods

The technique of allocating the estimated total population due to the projects is essentially an elementary form of the standard gravity model widely applied in many recent studies of land use and transportation. This method assumes that the number of commuters from any centre will be some positive function of the population size of the centre and inversely related to the commuting time between the place of residence and the place of work (in this case, the plant sites). An additional variable was introduced to improve the

correlation: the "primate factor." This factor reflects the higher level of service and amenities associated with a larger centre. It is an attempt to account for the fact that, for example, an urban centre with a population four times that of another centre will provide, not only four times the amount of the same services, but also some higher and more specialized facilities unavailable in the smaller centre. Using the worker residence surveys conducted at Ford's St. Thomas assembly plant and at STELCO's Hilton works in Hamilton, a series of calibration tests were carried out using different statistical functions.

In analyzing the Ford data, we noted two groups of commuter workers, with slightly different characteristics. The first group, about three-quarters of the total labour force, already lived in the region at the time the factory was built (in this case, within a radius of about 50 miles of the plant). Only a small proportion of the workers moved when they shifted to Ford. The second group consisted of workers who came to Ford from outside the region; generally, they wanted to live in a city nearby, preferably a reasonably large one. One reason for this preference may be that people from outside the region were likely to know the larger centres better than the smaller ones. Another may be the greater availability in larger centres of housing, educational

facilities, entertainment, and other urban amenities, to which people from outside the region may be more accustomed. In the Ford case, of the 25% of the work force from outside the region, about half took up residence in London and one-fifth in St. Thomas, with the remainder dispersed throughout the smaller centres of the region.

The calibration tests indicated that a logarithmic function offered the best correlation. Also, the Ford "St. Thomas" model was chosen over the "Hamilton" model because the general urban system in the former case is more like that at Nanticoke and the Bruce area. In arriving at the final equation for Sarnia, we included data on work journeys gathered as part of the former Lake St. Clair Study.*

The general form of the equation used for each of the projects is shown in Table 28. In using this equation, we have made a number of assumptions.

(i) In the case of the Nanticoke and Douglas Point developments, we assumed that 50% of the basic workers will be drawn from inside the commuting boundary (up to 40 miles of the plant), with the remaining 50% from outside the boundary. However, we assumed that a higher proportion of the basic workers for the Sarnia project,

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*Design for Development: Prospects for the St. Clair Region, Regional Planning Branch, Ontario Ministry of Treasury, Economics and Intergovernmental Affairs, 1972, unpublished technical memorandum.

TABLE 28

DISTRIBUTION OF RESIDENT WORKERS:
MODELS FOR THE NANTICOKE,
PETROSAR, AND BRUCE HYDRO
PROJECTS

$$N_{ij} = \frac{e^{Ao} \cdot POP_i^{0.42} \cdot e_i^{1.53PR}}{T_{ij}^{1.47}}$$

Where N_{ij} = Number of workers commuting from urban centre (i) to place of work (j).

POP_i = Approximate population size of the urban centre (i)

T_{ij} = Commuting time from the urban centre (i) to the place of work (j)

$e_i^{1.53PR}$ = Primate variable to account for the characteristics and specialized level of service of the primate centre. In the calibration, only London was considered the primate centre; in the case of Nanticoke, the new town near Jarvis; and in the case of S.O.A.P., Sarnia. No primate centre was assumed for Bruce Development Project.

e^{Ao} = Factor to account for differences in the per cent of workers drawn from outside and inside the region.

R = Coefficient of correlation = 0.91.

75%, will be drawn from inside the commuting boundary.

(ii) To translate the number of workers into total resident population for each of the projects, we used the basic:non basic employment ratios and the population/employment multipliers shown in Tables 23, 24 and 25.

(iii) The Townsend new town was assumed to have a base population of 5000 by 1981. This is estimated on the basis of the current housing proposal.

(iv) As indicated earlier, in the case of Nanticoke, we have prepared two sets of employment and population forecasts, Assumptions "X" and "Y." However, only the Assumption "X" forecast was used as input to the model because a) the difference between the total populations projected by the two assumptions are very small and b) Assumption "X" provides the upper limit of the impact.

(v) There will be no major change in the transportation system (e.g., no new freeway or inter-urban transit system).

(3) Results and Observations

The geographical distribution of population calculated by the model is shown in Tables 29 to 31. The following are the highlights of the observations drawn from the three tables.

(i) *Travel time is expected to influence worker distribution much more than the population size of the centres*. For example, the magnitude of the travel time exponent (Tij) is nearly four times that of the population exponent (Pop_i).* (See Table 28.)

(ii) *The population distribution in Nanticoke and Sarnia will be much more compact than in the Bruce area, largely because the Bruce area lacks dominant centres*. For example, it is expected that, by 1986, close to 60% of the population generated by the Nanticoke project will be residing in the Townsend new town, and the proportion will increase to nearly 70% of the total by 2001. In contrast, in the Bruce development, the three nearby centres--Kincardine, Southampton and Port Elgin--will share about 3/4 of the

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*1.47 versus 0.42; see equation in Table 28.

TABLE 29 (A)

POPULATION IMPACT BY CENTRES, NANTICOKE PROJECT,
ASSUMPTION "X" EMPLOYMENT PROJECTION, 1986

CENTRES	POPULATION GENERATED BY THE PROJECTS		PROJECTED TREND	PROPORTION OF GENERATED TO TREND POPULATION (%)
	NO.	% OF TOTAL		
TOWNSEND (NEW TOWN)	23,300	59	N.A.	N.A.
HAMILTON**	2,600	7	477,900	less than 1
PORT DOVER	2,200	6	4,000	55
SIMCOE	1,700	4	12,700	13
BRANTFORD	1,600	4	76,300	2
HAGERSVILLE	1,300	3	2,600	50
OTHER CENTRES*	6,600	17	N.A.	N.A.
ALL CENTRES	39,300	100		

NOTES: N.A. Not Available.

* For a list of other centres affected, see Appendix R. Each of these centres receives less than 300 people.

** Regional Municipality of Hamilton - Wentworth.

TABLE 29 (B)

POPULATION IMPACT BY CENTRES, NANTICOKE PROJECT,
ASSUMPTION "X" EMPLOYMENT PROJECTION, 2001

CENTRES	POPULATION GENERATED BY THE PROJECTS		PROJECTED TREND	PROPORTION OF GENERATED TO TREND POPULATION (%)
	NO.	% OF TOTAL		
TOWNSEND (NEW TOWN)	72,500	69	N.A.	N.A.
HAMILTON**	4,600	4	535,800	less than 1
PORT DOVER	4,600	4	4,500	102
SIMCOE	3,500	3	14,100	25
BRANTFORD	2,700	3	97,000	3
HAGERSVILLE	2,700	3	2,800	96
OTHER CENTRES*	15,200	14	N.A.	N.A.
ALL CENTRES	105,800	100		

NOTES: N.A. Not available

* For a list of other centres affected, see Appendix R. The population impact on each one of these centres is less than 500.

** Regional Municipalities of Hamilton-Wentworth.

TABLE 30

POPULATION IMPACT BY CENTRES,
BRUCE HYDRO PROJECT, 1986

CENTRES	POPULATION GENERATED BY THE PROJECTS		PROJECTED TRENDS	PROPORTION OF GENERATED TO TREND POPULATION (%)
	NO.	% OF TOTAL		
KINCARDINE	2,200	30	3,700	59
PORT ELGIN	2,000	28	3,600	56
SOUTHAMPTON	1,400	19	2,300	61
TIVERTON	800	11	N.A.	N.A.
OTHER CENTRES*	900	12	N.A.	N.A.
ALL CENTRES	7,300	100		

NOTES: N.A. Not available

* For a list of other centres affected by the project see Appendix S. With the exception of Owen Sound, Goderich, Paisley, Walkerton, and Hanover, which receive between 50 and 100 people, all the remaining centres receive less than 50 people.

TABLE 31

POPULATION IMPACT BY CENTRES,
SARNIA PETROSAR PROJECT, 1978

CENTRES	POPULATION GENERATED BY THE PROJECTS		PROJECTED TRENDS	PROPORTION OF GENERATED TO TREND POPULATION (%)
	NO.	% OF TOTAL		
SARNIA-PT. EDWARD	6,100	91	63,000	10
PETROLIA	400	6	4,300	9
OTHER CENTRES*	200	3	N.A.	N.A.
ALL CENTRES	6,700	100		

NOTES: N.A. Not available.

* For a list of other centres affected by the project, see Appendix T. Each one of these centres receives less than 100 people.

Figures do not include commuters from U.S.

total new population, with most of the remainder dispersed among the rural areas and centres further away.

(iii) *By 2001, the population of Townsend will be slightly over 70,000, which is only about half of the original design capacity.* Information available on the ultimate size of the planned steel mill and the industrial park indicates that the new town may never reach its capacity of 150,000, unless there is a large infusion of other economic activities.*

(vi) *In a number of other existing centres, the absolute population increase may not be too large (about 2000 to 3000), but the relative impact will be fairly significant.* This is particularly so for such centres as Port Dover, Hagersville, and Simcoe in the Nanticoke area and Kincardine, Southampton, and Port Elgin in the Bruce area. In many of these centres, the population increase due to the projects is equivalent to over half of the projected trend population of the centre.

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*For information on the ultimate capacity of the planned steel mill and the industrial park, see Footnote #7 to Table 23.

(v) At the same time, *the population impact on such large centres as Hamilton and Brantford will be relatively insignificant*, possibly because these centres are beyond the convenient commuting time. However, this situation might be changed if transportation were improved substantially, possibly through new multi-lane expressways or a high-capacity transit system.

(vi) *The Petrosar development will have little effect on the area*. Although about 90% of the projected population impact will be concentrated in Sarnia, the amount will be equivalent to only one-tenth of the projected trend, and even some of this is part of the normal growth expected (see discussion previously).*

Thus, overall, except for the fact that a new town will be created (Townsend) and may eventually reach an ultimate size of about 80,000, the three projects discussed above will not alter the projected urban system based on trends; however, the relative developmental impact on a number of the smaller centres in the Nanticoke and Bruce areas could be quite substantial.

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*The analysis excluded consideration of commuters from the U.S.

CHAPTER IV: ONTARIO POPULATION TO 2001 AND BEYOND

A. BEYOND 2001

At present the fertility rate in Ontario has already dropped below the replacement value of 2.1 and the declining trend seems likely to continue in the future. In spite of this decline, however, natural increase is unlikely to approach zero before 2001, even if we exclude the effect of migration. First, the present fertility rate is still considerably higher than the mortality rate (about 3:1). Second, while the number of births per women may decrease somewhat further, the total number of births will still increase because the number of women in the most fertile age groups will continue to grow for some time, as the children of the post-World War II "baby boom" pass through the child-bearing age. If the total fertility stabilizes at a value of 1.98 beyond 2001, and net migration is at a level of 50,000 per year, by 2060 the provincial population will reach around 15 million* (Figure 9). Beyond that date, the absolute population will start to decline. On the other hand, if the fertility rate declines at a somewhat faster rate, say to a level of 1.65 by 2001, maximum provincial population (about 12 1/2 million) will be reached some 35 years earlier, around 2026 (Figure 10). In terms of the COLUC area, the latter rate of decline would mean a maximum population ranging from 6 1/4 to 7 1/2 million, which is well within the population range of the nature urban system described in the COLUC Task Force Report.**

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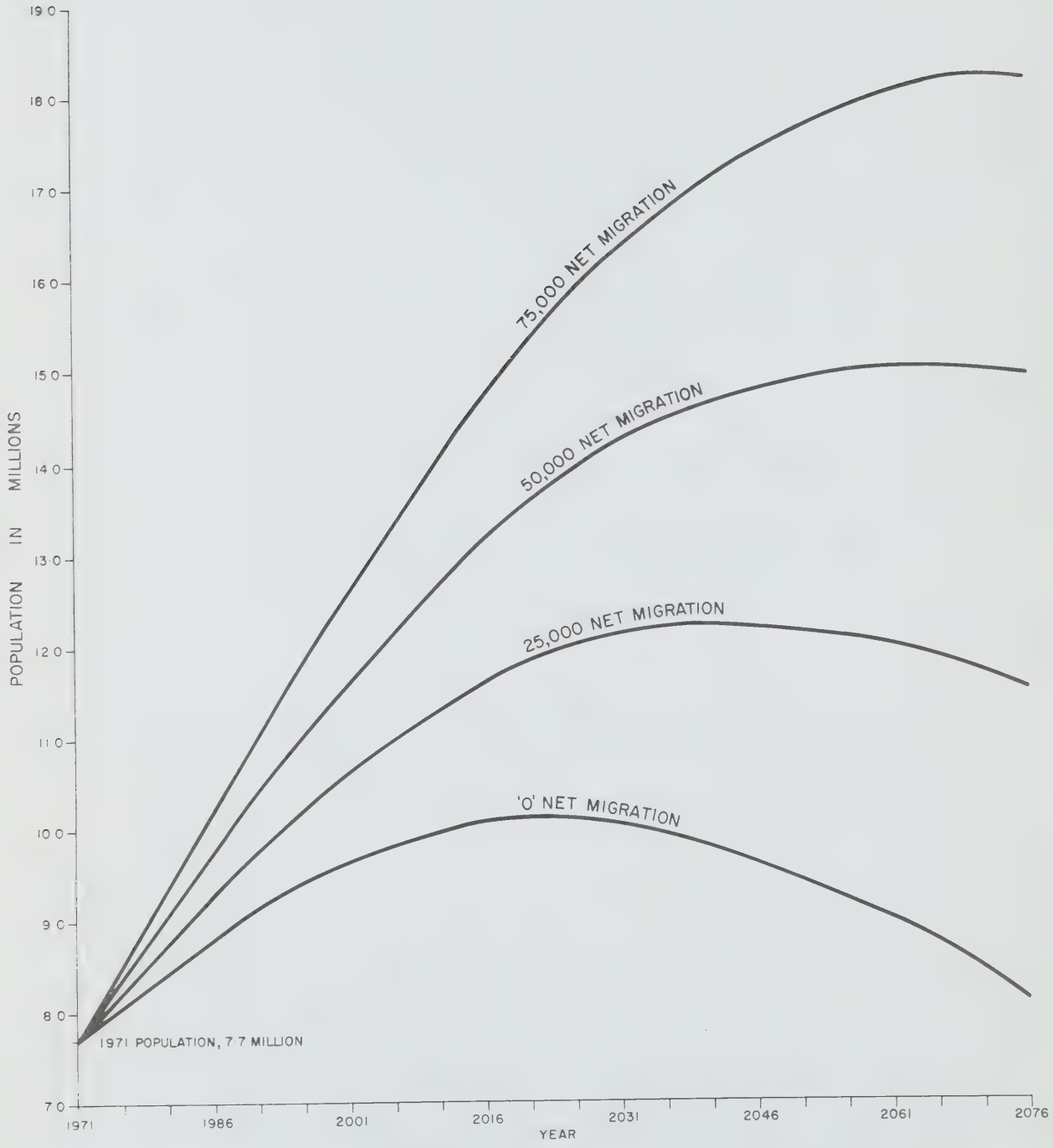
*The projected 11.6 million population was based on a fertility rate of 1.98 in 2001.

**The population range for COLUC mature state is between 6 and 8 million. See The COLUC Task Force Report, op. cit.

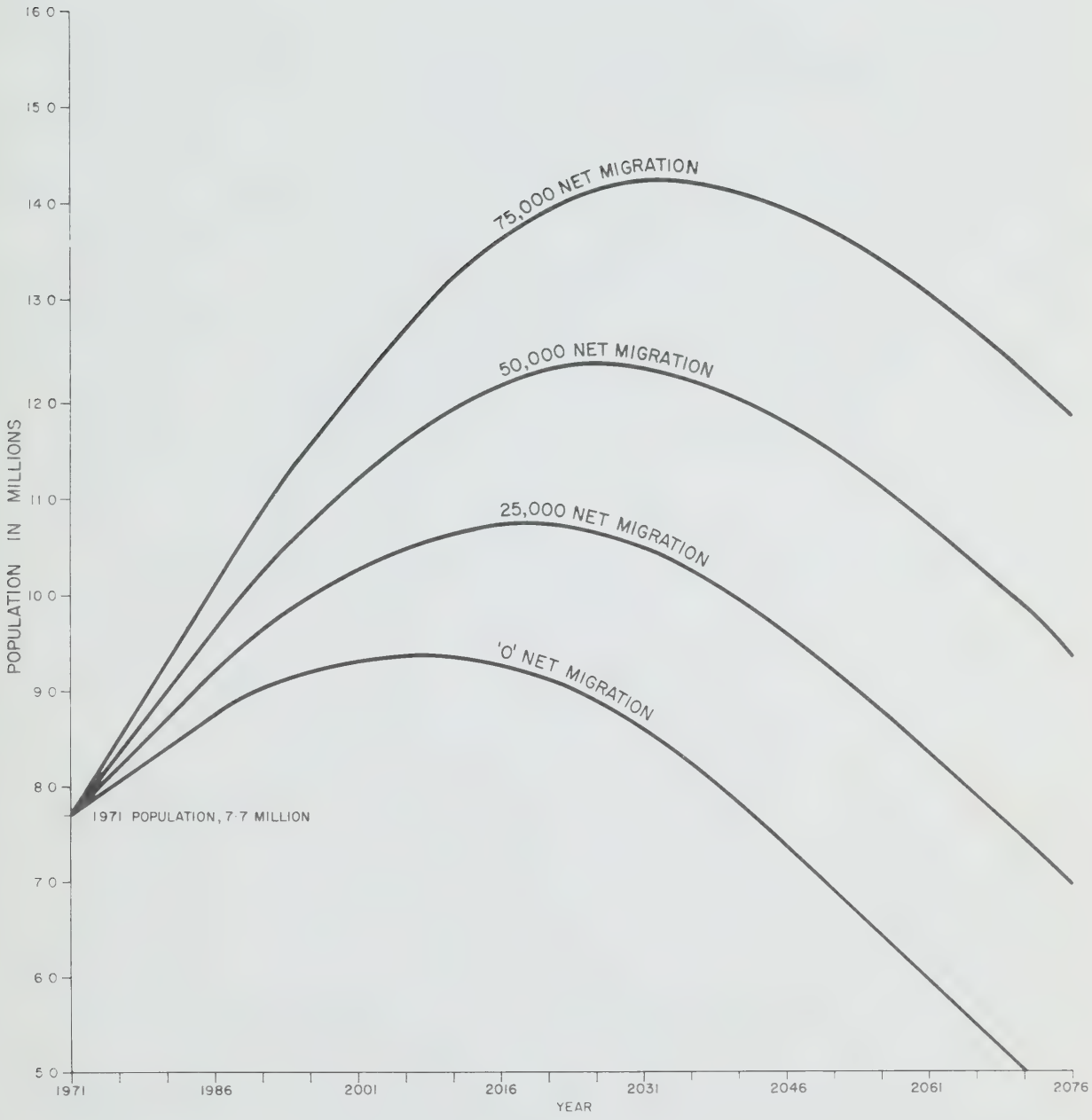
FIGURE 9: POPULATION TRENDS, ONTARIO, 1971-2076
"MEDIUM" FERTILITY ASSUMPTION



NOTE "MEDIUM" FERTILITY ASSUMPTION REFERS TO A DECLINE IN THE TOTAL FERTILITY RATE (T F R) MEASURED BY THE NUMBER OF BIRTHS PER WOMAN FROM 2.2 IN 1971 TO 1.98 IN 2001 AND HELD CONSTANT BEYOND THAT DATE

SOURCE: ECONOMIC ANALYSIS BRANCH, MINISTRY OF TREASURY, ECONOMICS AND INTERGOVERNMENTAL AFFAIRS, 1975

FIGURE 10: POPULATION TRENDS, ONTARIO, 1971-2076
"LOW" FERTILITY ASSUMPTION



NOTE "LOW" FERTILITY ASSUMPTION REFERS TO A DECLINE IN THE TOTAL FERTILITY RATE (T.F.R.) MEASURED BY THE NUMBER OF BIRTHS PER WOMAN FROM 2.2 IN 1971 TO 1.65 IN 2001 AND HELD CONSTANT BEYOND THAT DATE

SOURCE: ECONOMIC ANALYSIS BRANCH, MINISTRY OF TREASURY, ECONOMICS AND INTERGOVERNMENTAL AFFAIRS, 1975

B. SOME IMPLICATIONS

The foregoing sections have provided a perspective on the direction of population change in Ontario during the next three decades--its size, distribution and composition--together with an assessment of the population impact expected from some of the large regional projects already in progress. During the next thirty years, despite the fact that the present fertility rate has already fallen below the replacement level, population in Ontario will continue to grow. But because the rate of increase in the future will be much lower than it was in the past, many of the problems associated with rapid population growth will become less prominent public issues. On the other hand, a much slower rate of population growth could have some profound implications for the future of our economy; a number of the major planning and investment decisions made during the past few years were based, to a large extent, on a continuation of the rapid growth of the 1950's and 1960's. How the economy and some of the original commitments can be adjusted to be more in line with the revised growth picture without causing too much dislocation, could be a major aspect of contention in provincial development.

As regards spatial distribution, the population imbalance will become more extreme; most of the population increase will be concentrated in the large urban complexes, in particular in the COLUC area. The large metropolitan areas (except Hamilton and probably Windsor) are expected to grow twice as fast as the remainder of the province. But differences in sheer

numerical size and growth rate represent only one dimension of the issue. The bulk of the growth in a number of the metropolitan areas (i.e., Toronto) will consist of different immigrant groups, while the main source of growth in the rest of the province, including a few of the metropolitan areas (e.g., London), will be derived from natural increase. Furthermore, a large proportion of rural residents will be non-farm people. The ability to harness the diversity and opportunity arising from the differences in culture, aspirations, and taste of various social groups could be a major challenge in the formulation of a provincial policy for development and growth management.

For the greater part of the province, the population will change little if at all, while a number of counties, mainly those in eastern and northern Ontario, are expected to lose people through out-migration. However, in many instances, the small population change may conceal the importance of the issues. For example, the population increase for all the townships and small centres (less than 1000 people) in the province during the next thirty years is expected to be about half a million. Depending on the type of development demand and whether these developments are permitted, this rather moderate population increase could create a host of land use and resource utilization issues which would be far more complex and serious than, say, an additional two or three million people in the metropolitan areas.* Similarly, while the amount of out-migration from

*A case in point will be in agricultural land consumption.

eastern and northern Ontario will have little impact on the urbanization pressure in the metropolitan areas, the loss could have important implications for the development potential and level of service in the regions these people leave. Thus, any attempt to devise a provincial development policy will have to take into account the spatial differences in the character of population change, since these differences inevitably will entail different policy requirements.

Moving away from population size and distribution, one may find that issues resulting from change in demographic mix are also expected to arouse much greater public interest than they have in the past. A population much older than the present one will create quite different issues and require different policies, for example, in the pattern of investment and consumption in health, in education, in housing, in recreation, in manpower, in social programs, etc. Ultimately, this change in population characteristics may call for some reordering in our values and priorities. The road to adjustment is not easy, and it may be painful.

Given the above trend picture and some of the major implications, where does one go from here? For some time now, the provincial government has been trying to alter the development trend in Ontario. Recently, the need for a national population policy has been a subject of some concern at the federal level. Should the imbalance in population distribution be reduced? How much? What kind of population

policy can realistically be pursued in the current economic and social climate? These are complex and fundamental issues, but they will probably have to be dealt with if one attempts to pursue a development policy other than trend. More importantly, there is also the inevitable question of how a planned population policy can be put into effect and monitored realistically. In spite of the large investments involved, for instance, the three large regional projects described above will have little effect upon the population distribution in the province.* Furthermore, aside from the elements of cost and feasibility, it appears that efforts to promote economic development in the slow-growth or depressed regions through investment in large projects alone will not necessarily divert the growth away from the large metropolitan areas. On the other hand, the effects would be fairly substantial in the area in which the projects occur.

Thus far, we have merely attempted to sketch a number of the major implications of the demographic picture and the effect of selected large regional projects which we developed earlier. In the next volume, we will try to explore each of the major implications in much greater depth, including some of those identified in Volume I. We hope the information will provide us with a more informed basis for managing the future.

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*For example, investment by STELCO during the first stage (part 1 only) in Nanticoke amounts to $750 million. Each of the hydro stations varies between $500 million to nearly $1 billion.

CHAPTER V: ON USING THE FORECASTS

If you give a man a fish,
he will have a single meal.
If you teach him how to fish,
he will eat all his life.

Kuan-Tau

The report to this point has already fulfilled its stated objective, that is, to provide a perspective on the direction of population change in Ontario during the next three decades. To make the projections more meaningful, we have included a number of suggestions to guide the users in utilizing the information.

As in any forecasting attempt, the relevance of the projection results depends largely on the soundness of the input assumptions. It would be unrealistic and indeed impossible to suggest that the assumptions made in this report will cover all future eventualities. Rather, they represent the most probable directions of things to come at the time of the forecast. If the projections are to remain as time passes, they will have to be reviewed periodically in the light of continuing developments.

How will changes in the assumptions alter the projected results? The fertility rate, for instance, could fall lower than the assumed minimum value, or even turn upward again. However, it is unlikely to fluctuate in the future as much as it changed during the 1950's and 1960's. Even if the fertility rate drops another 20% below the original assumption

(from 1.99 births per woman to about 1.60, which is considered to be a low estimate at present), the 2001 provincial population will be reduced by only about 300,000.* And the reduction will be distributed across the province approximately in proportion to the pattern of population concentration, since the differences in fertility rate among various geographical areas in the province are narrowing. The effect of changes in the level of migration can also be isolated fairly readily, since the areas which will be affected most are a few of the major metropolitan centres.**

In the report, we have presented two sets of projection results, those based on Assumption "A" and those based on Assumption "B". In general, Assumption "B" forecasts emphasize the "Urban field" effect in such counties as Victoria, Wellington, and Essex, while Assumption "B" forecasts do not appear as sensitive to the emerging trends in these counties.*** On the other hand, Assumption "B" forecasts tend to describe the changes in slow-growing rural counties better than do those of Assumption "A".

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*The value is below the 1.80 figure assumed by Statistics Canada in computing their low fertility projections, see Population Projections for Canada and the Provinces, op. cit.

**For example, about 2/3 of the international migrants to Ontario will go to the COLUC area. However, this proportion will be somewhat lower if the immigration policy is revised to give special consideration to spatial impact.

***"Urban field" refers to the area surrounding the metropolitan area in which there is a great deal of urban characteristics and behaviour. See Fieldmann, J., and Miller, J., "The Urban Field" Journal of the American Institute of Planners, 1965 and Hodge, G., "The City in the Periphery" in Urban Futures for Central Canada, Ed. by Bourne, L., MacKinnon, R., and Simmons, J., University of Toronto Press, 1974.

Such counties--Dundas, Lennox, and Addington for example--are not subject to large migration shifts and/or dominated by the age structure of their population. Also, there were greater differences in the results between the two forecasts for the fast-growing and dynamic metropolitan areas.

Which set of figures should be used as the basis for planning and policy making? A number of users may be concerned over this question, but in general, for application purposes, the two forecasts do not differ greatly. For example, in only four counties of the 43 in southern Ontario did the two population projections for 1986 differ by more than 10%; in only one county did they differ by more than 15% (Table 32). There is greater disparity in the results for 2001, but the differences for the majority of the counties (about 3/4 of the total) are still less than 10%. In only two counties do these differences exceed 20%.

More important than the numerical differences themselves is the question of whether these differences will alter the over-all conclusions. In a number of circumstances, they will not. For example, in transportation planning, it would take a fairly substantial difference in population to require a change in the status or the capacity of a facility (such as adding an extra lane to a freeway or changing an arterial road to a limited-access highway).

TABLE 32

PERCENT DIFFERENCES IN POPULATION PROJECTION, ASSUMPTION "A" VERSUS ASSUMPTION "B", COUNTY AND REGION, 1986 AND 2001

COUNTY	DIFFERENCES BETWEEN ASSUMPTION "A" AND ASSUMPTION "B" PROJECTIONS (%)	
	1986	2001
BRANT	+2	0
DUFFERIN	+2	-7
*DURHAM	0	+1
HALDIMAND	-8	-17
HALIBURTON	-12	-13
*HALTON	+12	+23
MUSKOKA	-11	-15
NIAGARA	-1	-5
NORFOLK	-4	-9
NORTHUMBERLAND	-5	-10
*ONTARIO	+9	+19
*PEEL	+17	+30
PETERBOROUGH	-5	-9
SIMCOE	-2	-4
VICTORIA	-7	-13
WATERLOO	0	-6
WELLINGTON	-10	-17
*WENTWORTH	+5	+9
*METRO/YORK	0	+1
CENTRAL ONTARIO REGION	+2	+5

NOTE: + Assumption "B" exceeds Assumption "A"
- Assumption "B" is less than Assumption "A"
* COLUC Counties

TABLE 32
(continued)

PERCENT DIFFERENCES IN POPULATION PROJECTION, ASSUMPTION "A" VERSUS ASSUMPTION "B", COUNTY AND REGION, 1986 AND 2001

COUNTY	DIFFERENCES BETWEEN ASSUMPTION "A" AND ASSUMPTION "B" PROJECTIONS (%)	
	1986	2001
BRUCE	-5	-11
ELGIN	-6	-11
ESSEX	-7	-16
GREY	-1	-8
HURON	+1	-2
KENT	0	-3
LAMBTON	-2	-5
MIDDLESEX	-3	-2
OXFORD	0	-4
PERTH	0	-1
SOUTHWESTERN ONTARIO REGION	-4	-8
NORTHEASTERN ONTARIO REGION	-6	-18
NORTHWESTERN ONTARIO REGION	+13	+18

TABLE 32
(continued)

PERCENT DIFFERENCES IN POPULATION PROJECTION, ASSUMPTION "A" VERSUS ASSUMPTION "B", COUNTY AND REGION, 1986 AND 2001

COUNTY	DIFFERENCES BETWEEN ASSUMPTION "A" AND ASSUMPTION "B" PROJECTIONS (%)	
	1986	2001
DUNDAS	+4	+8
FRONTENAC	+2	+4
GLENGARRY	-5	-7
GRENVILLE	+3	0
HASTINGS	-7	-8
LANARK	0	-1
LEEDS	-2	+1
LENNOX/ ADDINGTON	+8	+9
OTTAWA- CARLETON	-6	-8
PRESCOTT	-2	-4
PRINCE EDWARD	+1	+2
RENFREW	-8	-14
RUSSELL	-11	-14
STORMONT	-4	-7
EASTERN ONTARIO REGION	-4	-6

Where the numerical differences are significant, the proper choice of projection may depend upon the purpose for which the information will be used. For example, in planning the future water supply or energy, particularly for an area expected to grow rapidly, one would use the higher estimate to ensure an adequate supply for the largest expected populations.* The higher projection should also be used for planning facilities or programs which would take a very long time to implement, particularly for those which are critical in nature. In most areas in the province, the excess capacity would not be wasted, since the population is expected to increase beyond 2001. But for estimating income or revenue, one might use the low projection, to be on the safe side. Similarly, the low estimate might be the most appropriate one to use in setting population targets for areas whose growth is to be stimulated. For these areas, an inherent surplus or safety factor is built into the planned facilities, in that the demand assumed for such facilities or programs (beyond that expected from trend) has yet to be created.

Lastly, in selecting a projection, users should bear in mind that conditions may change from one county to another. For example, the shift analysis showed a rather

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*Chapin, F. S., op. cit.

unstable future trend for a number of counties.* These counties include Peel, Halton, Dufferin, Haliburton, Muskoka, Ontario, Victoria, Wellington, Simcoe, Bruce, Elgin, Essex, Russell, and Prince Edward. Perhaps greater flexibility should be built into decisions concerning those counties.

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*Hodge, G., Appraisal of Population Forecasts for Ontario Counties, Unpublished Technical Memorandum, Queen's University, 1975.
For methodology, see Paris, J. D., "Regional/Structural Analysis of Population Changes," Regional Studies, Vol. 4, 1970, and Hodge, G., and Paris, J. D., "Population Growth and Regional Development." A paper presented to the Conference on Implications on Demographic Factors and Educational Planning and Research, OISC, Toronto, 1969.

APPENDICES

APPENDIX A (1)

POPULATION PROJECTIONS BY COUNTY AND CENTRES, CENTRAL ONTARIO PLANNING REGION, 1986-2001

COUNTY	1961	1971	1986		2001	
			ASSUMPTION "A"	ASSUMPTION "B"	ASSUMPTION "A"	ASSUMPTION "B"
BRANT	83,800	96,800	118,800	120,800	139,600	139,800
DUFFERIN	16,100	21,200	28,800	29,300	37,500	34,900
*DURHAM[a]	39,900	47,500	58,400	58,500	69,000	69,900
HALDIMAND	28,200	32,700	40,900	37,600	49,300	40,800
HALIBURTON	8,900	9,100	11,200	9,800	13,300	11,600
*HALTON	117,600	190,400	295,600	331,600	406,500	500,800
MUSKOKA	26,700	31,900	38,400	34,100	45,200	38,400
NIAGARA	291,400	347,300	417,300	413,700	479,000	456,500
NORFOLK	50,500	54,100	62,600	60,300	70,200	64,100
NORTHUMBERLAND	41,900	48,200	56,500	53,600	64,900	58,200
*ONTARIO	135,900	196,300	268,900	292,600	343,200	407,700
*PEEL	111,500	259,400	484,200	565,600	734,200	955,100
PETERBOROUGH	76,400	87,800	102,900	97,900	114,700	104,800
SIMCOE	141,300	171,400	220,000	214,500	268,200	256,200
VICTORIA	29,800	34,200	40,000	37,100	46,700	40,800
WATERLOO	176,800	254,000	366,400	364,700	480,700	454,200
WELLINGTON	84,700	108,600	151,300	136,200	196,700	163,100
*WENTWORTH	348,200	401,900	455,500	477,900	489,600	535,800
*METRO/YORK	1,733,100	2,252,100	2,854,500	2,857,800	3,364,500	3,412,600
TOTAL	3,542,700	4,644,00	6,072,000	6,193,600	7,413,000	7,745,300

NOTE:

* COLUC Counties.

[a] Former County of Durham, not Regional Municipality of Durham

APPENDIX A (1)
(continued)

TOWNSHIPS AND CENTRES	1961	1971	1986 ASSUMPTION "A"	1986 ASSUMPTION "B"	2001 ASSUMPTION "A"	2001 ASSUMPTION "B"
BRANT COUNTY						
ALL TOWNSHIPS	22,800	25,900	30,300	30,700	34,200	34,000
BRANTFORD C. [1]	55,200	64,400	80,800	82,200	96,500	97,000
PARIS T.	5,800	6,500	7,700	7,900	8,900	8,800
TOTAL	83,800	96,800	118,800	120,800	139,600	139,800
DUFFERIN COUNTY						
ALL TOWNSHIPS	9,600	10,400	12,000	12,200	12,900	13,200
ORANGEVILLE T.	4,600	8,100	13,200	13,500	20,100	17,500
GRAND VALLEY V.	600	900	1,200	1,200	1,500	1,400
SHELBURNE V.	1,300	1,800	2,400	2,400	3,000	2,800
TOTAL	16,100	21,200	28,800	29,300	37,500	34,900
HALDIMAND COUNTY						
ALL TOWNSHIPS	17,000	19,600	24,300	22,300	29,200	24,200
CALEDONIA T.	2,200	3,200	4,300	4,000	5,400	4,500
DUNNVILLE T.	5,200	5,600	6,700	6,200	7,800	6,400
CAYUGA V.	900	1,100	1,400	1,300	1,800	1,500
HAGERSVILLE V.	2,100	2,300	2,900	2,600	3,500	2,800
JARVIS V.	800	900	1,300	1,200	1,600	1,400
TOTAL	28,200	32,700	40,900	37,600	49,300	40,800
HALIBURTON COUNTY						
TOTAL	8,900	9,100	11,200	9,800	13,300	11,600
DISTRICT OF MUSKOKA [2]						
ALL TOWNSHIPS	7,500	8,100	9,500	8,400	10,600	9,100
BRACEBRIDGE T.	5,700	6,900	8,300	7,300	9,700	8,200
GRAVENHURST T.	5,600	7,100	8,700	7,800	10,600	9,000
HUNTSVILLE T.	7,900	9,800	11,900	10,600	14,300	12,100
TOTAL	26,700	31,900	38,400	34,100	45,200	38,400

1 If the entire Brantford urban complex is considered, it should include part of Brantford Township which amounts to 2,200 additional population in 1971, giving a total of 66,600 for the complex as a whole.

2 1961 figures for the municipalities in Muskoka have been changed to conform with 1971 boundaries.

APPENDIX A (1)
(continued)

TOWNSHIPS AND CENTRES	1961	1971	1986		2001	
			ASSUMPTION "A"	ASSUMPTION "B"	ASSUMPTION "A"	ASSUMPTION "B"
REGIONAL MUNICIPALITY OF NIAGARA [1]						
ALL TOWNSHIPS	11,300	13,900	17,100	16,900	20,000	19,100
NIAGARA FALLS C.	58,600	67,200	77,600	77,000	85,300	81,400
PORT COLBORNE C.	19,900	21,400	24,600	24,400	26,400	25,100
ST. CATHARINES C. [2]	86,600	109,700	131,500	130,100	150,500	143,500
WELLAND C.	39,400	44,400	53,800	53,400	62,300	59,400
FORT ERIE T.	20,000	23,100	29,200	29,000	35,000	33,300
GRIMSBY T.	10,900	15,800	22,100	22,000	29,700	28,000
LINCOLN T.	11,400	14,200	16,700	16,600	19,200	18,300
NIAGARA-ON-THE-LAKE T.	11,300	12,500	15,500	15,300	17,700	16,900
PELHAM T.	7,600	10,000	11,700	11,600	12,800	12,300
THOROLD T. [2]	14,400	15,100	17,500	17,400	20,100	19,200
TOTAL	291,400	347,300	417,300	413,700	479,000	456,500
NORFOLK COUNTY						
ALL TOWNSHIPS [3]	32,200	32,700	36,300	35,000	39,200	35,700
DELHI T.	3,400	3,900	5,300	5,000	6,600	6,000
PORT DOVER T.	3,100	3,400	4,200	4,000	4,900	4,500
SIMCOE T.	8,800	10,800	13,100	12,700	15,500	14,100
WATERFORD T.	2,200	2,400	2,700	2,600	3,000	2,800
PORT ROWAN V.	800	900	1,000	1,000	1,000	1,000
TOTAL	50,500	54,100	62,600	60,300	70,200	64,100

1 1961 Figures for the Regional Municipality of Niagara have been changed to conform with the 1971 boundaries.

2 If the entire St. Catharines Urban Complex is considered, it should include part of the town of Thorold, which amounts to about 12,100 additional population in 1971, giving a total of 121,800 for the whole urban area.

3 The Town of Tillsonburg (Oxford County) annexed part of Middleton Township (Norfolk County) in 1966.

APPENDIX A (1)
(continued)

TOWNSHIPS AND CENTRES	1961	1971	1986		2001	
			ASSUMPTION "A"	ASSUMPTION "B"	ASSUMPTION "A"	ASSUMPTION "B"
NORTHUMBERLAND COUNTY						
ALL TOWNSHIPS[1]	23,100	27,900	33,500	31,800	39,100	35,100
CAMPBELLFORD T.	3,500	3,500	3,700	3,500	3,800	3,400
COBOURG T.	10,700	11,300	13,100	12,500	15,000	13,400
BRIGHTON V.	2,400	3,000	3,400	3,200	3,900	3,500
COLBORNE V.	1,300	1,600	1,800	1,700	2,100	1,900
HASTINGS V.	900	900	1,000	900	1,000	900
TOTAL	41,900	48,200	56,500	53,600	64,900	58,200
PETERBOROUGH COUNTY						
ALL TOWNSHIPS	24,700	25,000	29,200	27,700	32,400	29,700
PETERBOROUGH C.[2]	47,200	58,100	68,700	65,400	77,100	70,400
HAVELOCK V.	1,200	1,200	1,300	1,300	1,400	1,300
LAKEFIELD V.	2,200	2,300	2,500	2,300	2,500	2,300
NORWOOD V.	1,100	1,200	1,200	1,200	1,300	1,100
TOTAL	76,400	87,800	102,900	97,900	114,700	104,800

[1] The Town of Trenton (Hastings County) annexed part of Murray Township in 1964 and 1968.

[2] If the entire Peterborough Urban Complex is considered, it should include part of Douro Township which amounts to 1,200 additional population in 1971, yielding a total of 59,300 for the entire urban area.

APPENDIX A (1)
(continued)

TOWNSHIPS AND CENTRES	1961	1971	1986		2001	
			ASSUMPTION "A"	ASSUMPTION "B"	ASSUMPTION "A"	ASSUMPTION "B"
SIMCOE COUNTY						
ALL TOWNSHIPS	68,800	74,000	91,500	88,200	107,500	102,700
BARRIE C.[1]	21,200	27,700	38,900	39,100	50,600	48,300
ORILLIA C.	15,300	24,000	34,300	33,100	46,100	44,100
ALLISTON T.	2,900	3,200	4,200	4,100	4,800	4,600
BRADFORD T.	2,300	3,400	4,200	4,100	4,800	4,600
COLLINGWOOD T.	8,400	9,800	11,200	10,800	12,100	11,500
MIDLAND T.	8,700	11,000	14,300	13,900	17,400	16,700
PENETANGUISHENE T.	5,300	5,500	5,500	5,400	5,600	5,400
STAYNER T.	1,700	1,900	2,400	2,400	3,000	2,800
BEETON V.	800	1,100	1,300	1,300	1,600	1,500
COLDWATER V.	700	800	900	900	1,100	1,000
COOKSTOWN V.	0	800	1,100	1,100	1,300	1,300
CREEMORE V.	800	1,000	1,300	1,300	1,600	1,500
ELMVALE V.	1,000	1,100	1,300	1,300	1,600	1,500
PORT McNICOLL V.	1,100	1,400	1,800	1,700	1,900	1,800
TOTTENHAM V.	800	1,600	1,800	1,700	1,900	1,800
VICTORIA HARBOUR V.	1,100	1,200	1,100	1,300	1,300	1,300
WASAGA BEACH V.[2]	400	1,900	2,900	2,800	4,000	3,800
TOTAL	141,300	171,400	220,000	214,500	268,200	256,200

[1] If the entire Urban Complex is considered, it should include part of Innisfil Township, which contained about 1,200 population in 1971, giving a total of 28,900 in population.

[2] Annexations of parts of Sunnidale Township by Wasaga Beach in 1966.

APPENDIX A (1)
(continued)

TOWNSHIPS AND CENTRES	1961	1971	1986		2001	
			ASSUMPTION "A"	ASSUMPTION "B"	ASSUMPTION "A"	ASSUMPTION "B"
VICTORIA COUNTY						
ALL TOWNSHIPS	14,600	17,100	20,000	18,500	23,300	20,300
LINDSAY T.	11,400	12,700	15,000	13,900	17,600	15,400
BOBCAYGEON V.	1,200	1,500	1,800	1,600	2,100	1,800
FENELON FALLS V.	1,400	1,600	1,800	1,700	2,100	1,800
OMEMEE V.	800	800	800	800	900	800
STURGEON POINT V.[1]	0	0	100	100	100	100
WOODVILLE V.	400	500	500	500	600	600
TOTAL	29,800	34,200	40,000	37,100	46,700	40,800
WATERLOO COUNTY						
ALL TOWNSHIPS	28,800	31,400	24,500	34,200	37,400	35,400
*GALT C.	27,800	38,900	55,300	55,000	70,200	66,300
*KITCHENER C.	74,500	111,800	171,500	170,700	235,600	222,400
*WATERLOO C.	21,300	36,700	53,900	53,600	71,200	67,200
*ELMIRA T.	3,400	4,700	7,000	7,000	8,700	8,200
HESPELER T.	4,500	6,300	9,100	9,100	12,000	11,400
NEW HAMBURG T.	2,200	3,000	4,400	4,400	5,800	5,500
*PRESTON T.	11,600	16,700	24,500	24,500	31,700	30,000
*AYR V.	1,000	1,300	1,800	1,800	2,400	2,300
*BRIDGEPORT V.	1,700	2,400	3,300	3,300	4,300	4,100
WELLESLEY V.	0	800	1,100	1,100	1,400	1,400
TOTAL	176,800	254,000	366,400	364,700	480,700	454,200

* These centres are all defined as parts of the Kitchener CMA.

[1] Actual population for 1961 was 21, and for 1971 was 36.

APPENDIX A (1)
(continued)

TOWNSHIPS AND CENTRES	1961	1971	1936		2001	
			ASSUMPTION "A"	ASSUMPTION "B"	ASSUMPTION "A"	ASSUMPTION "B"
WELLINGTON COUNTY						
ALL TOWNSHIPS	30,300	30,300	37,400	33,600	42,800	35,600
GUELPH C.	39,800	60,100	89,400	80,400	123,600	102,300
FERGUS T.	3,800	5,400	7,600	6,800	9,800	8,200
HARRISTON T.	1,600	1,800	2,100	1,900	2,400	2,000
MOUNT FOREST T.[1]	2,600	3,000	3,800	3,600	4,500	3,800
PALMERSTON T.	1,600	1,900	2,600	2,300	3,100	2,600
ARTHUR V.	1,200	1,400	1,800	1,600	2,000	1,800
CLIFFORD V.	600	600	800	700	800	700
DRAYTON V.	700	800	1,100	1,000	1,400	1,100
ELORA V.	1,500	1,900	2,700	2,500	3,500	2,900
ERIN V.	1,000	1,400	2,000	1,800	2,800	2,100
TOTAL	84,700	108,600	151,300	136,200	196,700	163,100

[1] The Town of Mount Forest annexed part of Egremont Township (Grey County), 1964.

APPENDIX A (2)

POPULATION TARGETS BY URBAN PLACES WITHIN COLUC,
CENTRAL ONTARIO PLANNING REGION, 1986 - 2001

URBAN PLACES *	1971	1986 ASSUMPTION "A"	1986 ASSUMPTION "B" RA	1986 ASSUMPTION "B" RB	2001 ASSUMPTION "A"	2001 ASSUMPTION "B" RA	2001 ASSUMPTION "B" RB
HAMILTON	354	not available	412	475	not available	598	595
BURLINGTON	80		100	105		134	130
N. BURLINGTON	1		1	2		1	4
MILTON	7		9	13		11	16
HAMILTON SUB-REGION	442		522	595		744	745
MISSISSAUGA	143		222	280		356	350
OAKVILLE	57		66	105		90	150
N. OAKVILLE	1		1	4		1	77
ERIN MILLS-MEADOWVALE	9		53	60		183	160
BRAMPTON-BRAMALEA	65		92	125		130	200
MALTON	18		20	25		30	30
GEORGETOWN	17		22	26		31	33
MISSISSAUGA SUB-REGION	310		476	625		821	1,000
OSHAWA-WHITBY	115		298	180		397	254
S. PICKERING	21		58	40		90	70
N. PICKERING	2		30	34		120	106
AJAX	17		24	34		45	65
BOWMANVILLE	8		15	15		35	18
ADDLEY	3		3	6		3	17
COLUMBUS	1		1	1		33	60
OSHAWA SUB-REGION	167		429	310		723	590
AURORA-NEWMARKET	30		55	44		75	67
WOODBRIDGE	3		6	7		12	14
RICHMOND HILL	25		44	47		59	60
MARKHAM-UNIONVILLE	11		18	21		21	24
NORTH SUB-REGION	69		123	119		167	185
TORONTO[1]	817		904	862		925	907
WEST METRO[2]	430		515	485		535	520
NORTH METRO[3]	522		670	658		730	727
EAST METRO[4]	335		490	475		615	586
TORONTO SUB-REGION	2,104		2,579	2,480		2,805	2,740
TORONTO URBAN PLACES	3,092		4,129	4,129		5,260	5,260
REST OF COLUC	233		300	300		387	387
TOTAL COLUC **	3,325		4,429	4,429		5,647	5,647

* For the location of urban places, see COLUC report.

** For a comparison between the COLUC area and the six COLUC counties, see Figure 3.

1 Includes City of Toronto and East York
2 Includes Etobicoke and York
3 Includes North York and part of North Metro fringe
4 Includes Scarborough and part of North Metro fringe

SOURCE: The Central Ontario Lakeshore Urban Complex (COLUC) Study, a report submitted to the Advisory Committee on Urban and Regional Affairs, Ontario 1974.

RA and RB refer to the two population allocation series contained in the report.

APPENDIX B

POPULATION PROJECTIONS BY COUNTY AND CENTRE,
SOUTHWESTERN ONTARIO PLANNING REGION,
1986 - 2001

COUNTY	1961	1971	1986		2001	
			ASSUMPTION "A"	ASSUMPTION "B"	ASSUMPTION "A"	ASSUMPTION "B"
BRUCE	43,000	47,400	55,500	52,700	65,500	58,200
ELGIN	62,900	66,600	79,000	74,100	92,000	81,500
ESSEX	256,800	306,400	395,800	366,400	487,600	407,600
GREY	62,000	66,400	74,200	73,200	82,400	75,700
HURON	53,800	53,000	48,200	48,800	41,700	40,900
KENT	90,900	101,100	116,900	117,000	131,400	128,100
LAMBTON	102,100	114,300	132,600	130,500	146,700	139,800
MIDDLESEX	221,400	282,000	361,800	350,400	435,100	425,100
OXFORD	71,200	80,300	92,400	92,500	103,100	99,000
PERTH	56,800	63,000	69,800	69,700	76,100	75,700
TOTAL	1,020,900	1,180,500	1,426,200	1,375,300	1,661,600	1,531,600

APPENDIX B
(continued)

TOWNSHIPS AND CENTRES	1961	1971	1986		2001	
			ASSUMPTION "A"	ASSUMPTION "B"	ASSUMPTION "A"	ASSUMPTION "B"
BRUCE COUNTY						
ALL TOWNSHIPS[1]	23,400	24,600	28,200	26,800	33,100	29,500
CHESLEY T.	1,700	1,700	1,900	1,800	2,200	2,000
KINCARDINE T.	2,800	3,200	3,800	3,700	4,500	4,000
PORT ELGIN T.	1,600	2,900	3,800	3,600	4,700	4,100
SOUTHAMPTON T.	1,800	2,000	2,400	2,300	2,800	2,500
WALKERTON T.	3,900	4,500	5,400	5,100	6,400	5,600
WIARTON T.	2,100	2,200	2,600	2,400	3,000	2,700
LUCKNOW V.	1,000	1,100	1,100	1,100	1,200	1,100
ALL OTHER VILLAGES	4,700	5,200	6,300	5,900	7,600	6,700
TOTAL	43,000	47,400	55,500	52,700	65,500	58,200
ELGIN COUNTY						
ALL TOWNSHIPS	29,000	29,200	33,800	31,600	38,900	34,500
*ST. THOMAS C.	22,500	25,500	31,200	29,300	36,800	32,600
*AYLMER T.	4,700	4,800	5,500	5,200	6,400	5,600
PORT STANLEY V.	1,500	1,700	1,800	1,700	1,900	1,700
RODNEY V.	1,000	1,000	1,000	1,000	1,100	1,000
WEST LORNE V.	1,100	1,100	1,100	1,000	1,100	1,000
ALL OTHER VILLAGES	3,100	3,300	4,600	4,300	5,800	5,100
TOTAL	62,900	66,600	79,000	74,100	92,000	81,500

1 Hanover Town (Grey County) annexed part of Brant Township in 1971.

* These Centres have been defined as part of the London CMA.

APPENDIX B
(Continued)

TOWNSHIPS AND CENTRES	1961	1971	1986 ASSUMPTION "A"	1986 ASSUMPTION "B"	2001 ASSUMPTION "A"	2001 ASSUMPTION "B"
ESSEX COUNTY[1]						
ALL TOWNSHIPS	39,800	50,400	66,000	60,900	82,700	68,000
WINDSOR C.[2]	193,400	227,400	293,000	271,400	360,600	301,700
*AMHERSTBURG T.	4,500	5,200	6,700	6,200	8,300	6,900
*BELLE RIVER T.	1,900	2,900	4,000	3,700	4,900	4,500
*ESSEX T.	3,400	4,000	5,100	4,800	6,300	5,300
HARROW T.	1,800	2,000	2,400	2,200	2,400	2,400
KINGSVILLE T.	3,000	4,100	5,100	4,800	6,300	5,300
LEAMINGTON T.	9,000	10,400	13,500	12,400	16,100	13,500
TOTAL	256,800	306,400	395,800	366,400	487,600	407,600
GREY COUNTY						
ALL TOWNSHIPS[3]	29,400	31,000	34,700	34,200	38,400	35,200
OWEN SOUND C.	17,400	18,500	20,500	20,200	22,600	20,700
DURHAM T.	2,200	2,500	2,700	2,700	3,100	2,900
HANOVER T.[4]	4,400	5,100	5,700	5,600	6,500	6,000
MEAFORD T.	3,800	4,000	4,500	4,500	4,900	4,500
THORNBURY	1,100	1,200	1,400	1,300	1,500	1,400
MARKDALE V.	1,100	1,200	1,400	1,500	1,500	1,600
ALL OTHER VILLAGES	2,600	2,900	3,300	3,200	3,900	3,400
TOTAL	62,000	66,400	74,200	73,200	82,400	75,700

1 Essex boundaries changed in 1971; 1961 figures adjusted accordingly.

2 Windsor as used here embodies essentially the urbanized core of the Census metropolitan Area of Windsor and the adjacent townships. It includes the City of Windsor, Town of Tecumseh, Village of St. Cair Beach, Townships of Sandwich and Sandwich South.
The City of Windsor accounts for 114,400, while the rest of the places contributed about 79,000 in 1961.
The City of Windsor accounts for 203,300 while the rest of the places contributed about 24,100 in 1971.

3 The Town of Mount Forest (Wellington County) annexed part of Egremont Township in 1964.

4 The Town of Hanover annexed part of Brant Township (Bruce County) in 1971.

* These centres are all defined as parts of the Windsor CMA.

APPENDIX B
(continued)

TOWNSHIPS AND CENTRES	1961	1971	1986		2001	
			ASSUMPTION "A"	ASSUMPTION "B"	ASSUMPTION "A"	ASSUMPTION "B"
HURON COUNTY						
ALL TOWNSHIPS	32,500	30,600	27,500	27,800	23,500	23,100
CLINTON T.	3,500	3,200	2,900	2,900	2,500	2,500
EXETER T.	3,000	3,400	3,100	3,200	2,800	2,700
GODERICH T.	6,400	6,800	6,500	6,500	5,700	5,600
SEAFORTH T.	2,300	2,100	1,900	2,000	1,700	1,700
WINGHAM T.	2,900	2,900	2,700	2,700	2,300	2,300
ALL VILLAGES	3,200	4,000	3,600	3,700	3,200	3,000
TOTAL	53,800	53,000	48,200	48,800	41,700	40,900
KENT COUNTY						
ALL TOWNSHIPS	37,800	38,300	43,600	43,600	48,600	47,400
CHATHAM C.	29,800	35,300	42,300	42,300	48,200	46,900
BLENHEIM T.	3,200	3,500	4,100	4,100	4,700	4,600
BOTHWELL T.	800	800	900	900	1,100	1,000
DRESDEN T.	2,300	2,400	2,600	2,600	2,800	2,700
RIDGETOWN T.	2,600	2,800	3,300	3,300	3,500	3,500
TILBURY T.	3,000	3,600	4,200	4,200	5,000	4,900
WALLACEBURG T.	7,900	10,500	11,600	11,600	12,700	12,400
THAMESVILLE V.	1,100	1,000	1,100	1,100	1,100	1,000
WHEATLEY V.	1,400	1,700	1,900	2,000	2,100	2,200
ALL OTHER VILLAGES	1,000	1,200	1,300	1,300	1,600	1,500
TOTAL	90,900	101,100	116,900	117,000	131,400	128,100

APPENDIX B
(continued)

TOWNSHIPS AND CENTRES	1961	1971	1986		2001	
			ASSUMPTION "A"	ASSUMPTION "B"	ASSUMPTION "A"	ASSUMPTION "B"
LAMBTON COUNTY						
ALL TOWNSHIPS	36,500	41,100	47,900	47,100	52,800	50,300
SARNIA C.[1]	51,000	57,600	67,100	66,000	74,500	71,000
FOREST T.	2,200	2,400	2,800	2,700	3,100	2,900
PETROLIA T.	3,700	4,000	4,600	4,600	5,100	4,900
POINT EDWARD V.[1]	2,700	2,800	3,000	3,000	3,400	3,200
WATFORD V.	1,300	1,400	1,500	1,500	1,600	1,600
WYOMING V.	900	1,300	1,300	1,300	1,500	1,400
ALL OTHER VILLAGES	3,800	3,700	4,400	4,300	4,700	4,500
TOTAL	102,100	114,300	132,600	130,500	146,700	139,800
MIDDLESEX COUNTY						
ALL TOWNSHIPS	42,200	47,100	57,600	55,700	67,400	64,900
*LONDON C.	169,600	223,200	289,800	280,600	350,700	343,500
PARKHILL T.	1,200	1,200	1,400	1,400	1,400	1,500
STRATHROY T.	5,100	6,600	8,300	8,100	10,000	9,700
GLENCOE V.	1,100	1,400	1,800	1,800	2,200	2,100
LUCAN V.	1,000	1,200	1,400	1,400	1,700	1,700
ALL OTHER VILLAGES	1,200	1,300	1,500	1,400	1,700	1,700
TOTAL	221,400	282,000	361,800	350,400	435,100	425,100

* This centre has been defined as part of the London CMA.

1 If the entire Sarnia urban complex is considered, it should include part of Moore Township, the Indian Reserve, part of Sarnia Township and Village of Point Edward.

APPENDIX B
(continued)

TOWNSHIPS AND CENTRES	1961	1971	1986		2001	
			ASSUMPTION "A"	ASSUMPTION "B"	ASSUMPTION "A"	ASSUMPTION "B"
OXFORD COUNTY						
ALL TOWNSHIPS	33,700	34,700	39,100	39,100	43,400	41,600
WOODSTOCK C.	20,500	26,200	31,000	31,000	35,000	33,700
INGERSOLL T.	6,900	7,800	9,100	9,100	10,200	9,800
TILLSONBURG T.[1]	6,600	6,600	7,400	7,400	8,100	7,800
NORWICH V.	1,700	1,800	2,000	2,000	2,300	2,200
TAVISTOCK V.[2]	1,200	1,500	1,800	1,900	2,000	1,900
ALL OTHER VILLAGES	600	1,700	2,000	2,000	2,100	2,000
TOTAL	71,200	80,300	92,400	92,500	103,100	99,000
PERTH COUNTY[3]						
ALL TOWNSHIPS[2]	24,500	25,400	28,000	27,900	30,400	30,200
STRATFORD C.	20,500	24,500	27,400	27,400	30,100	29,900
LISTOWEL T.	4,000	4,700	5,200	5,200	5,600	5,600
MITCHELL T.	2,200	2,500	2,700	2,700	3,000	3,000
ST. MARYS T.	4,500	4,700	5,200	5,200	5,600	5,600
MILVERTON V.	1,100	1,200	1,300	1,300	1,400	1,400
TOTAL	56,800	63,000	69,800	69,700	76,100	75,700

1 The Town of Tillsonburg annexed part of Middleton Township (Norfolk County) in 1966.

2 The Village of Tavistock annexed part of South Easthope Township (Perth County) in 1970.

3 County boundaries changed in 1966 to exclude part of a municipality, figures adjusted accordingly for 1961.

APPENDIX C

POPULATION PROJECTIONS BY COUNTY AND CENTRES,
EASTERN ONTARIO PLANNING REGION,
1986 - 2001

COUNTY	1961	1971	1986		2001	
			ASSUMPTION "A"	ASSUMPTION "B"	ASSUMPTION "A"	ASSUMPTION "B"
DUNDAS	17,200	17,400	17,000	17,600	16,200	17,500
FRONTENAC	87,500	101,700	113,500	116,100	119,400	123,800
GLENGARRY	19,200	18,500	19,400	18,500	20,000	18,600
GRENVILLE	22,900	24,300	26,400	27,300	28,100	28,000
HASTINGS	93,400	99,400	117,600	109,200	132,700	122,500
LANARK	40,300	42,300	44,000	43,900	44,800	44,300
LEEDS	46,900	50,100	51,800	50,700	51,800	52,400
LENNOX/ADDINGTON	23,700	28,400	34,300	37,100	40,700	44,300
OTTAWA-CARLETON	358,400	471,900	648,900	612,100	811,800	747,200
PRESCOTT	27,200	27,800	30,800	30,200	32,700	31,400
PRINCE EDWARD	21,100	20,600	19,300	19,500	17,100	17,500
RENFREW	89,600	90,900	102,400	94,000	112,000	96,000
RUSSELL	15,400	16,300	19,800	17,600	21,000	18,100
STORMONT	57,900	61,300	67,300	64,400	70,300	65,200
TOTAL	920,700	1,070,900	1,312,500	1,258,200	1,518,600	1,426,800

APPENDIX C
(continued)

TOWNSHIPS AND CENTRES	1961	1971	1986		2001	
			ASSUMPTION "A"	ASSUMPTION "B"	ASSUMPTION "A"	ASSUMPTION "B"
DUNDAS COUNTY						
ALL TOWNSHIPS	11,500	11,300	10,700	11,100	10,100	10,900
CHESTERVILLE V.	1,300	1,200	1,300	1,300	1,200	1,300
IROQUOIS V.	1,200	1,200	1,300	1,300	1,200	1,300
MORRISBURG V.	1,800	2,100	2,100	2,200	2,100	2,300
WINCHESTER V.	1,400	1,600	1,600	1,700	1,600	1,700
TOTAL	17,200	17,400	17,000	17,600	16,200	17,500
FRONTENAC COUNTY						
ALL TOWNSHIPS	34,000	42,600	48,800	49,900	52,600	54,500
KINGSTON C.[1]	53,500	59,100	64,700	66,200	66,800	69,300
TOTAL	87,500	101,700	113,500	116,100	119,400	123,800
GLENGARRY COUNTY						
ALL TOWNSHIPS	15,200	13,800	14,000	13,400	14,300	13,300
ALEXANDRIA T.	2,600	3,200	3,800	3,600	4,000	3,700
ALL VILLAGES	1,400	1,500	1,600	1,500	1,700	1,600
TOTAL	19,200	18,500	19,400	18,500	20,000	18,600
GRENVILLE COUNTY						
ALL TOWNSHIPS	12,700	13,900	15,500	16,000	16,600	16,500
KEMPTVILLE T.	2,000	2,400	2,900	3,000	3,200	3,200
PRESCOTT T.	5,400	5,200	5,200	5,400	5,400	5,400
CARDINAL V.	1,900	1,900	1,900	1,900	1,900	1,900
MERRICKVILLE V.	900	900	900	1,000	1,000	1,000
TOTAL	22,900	24,300	26,400	27,300	28,100	28,000

[1] If the entire Kingston urban complex is considered, it should embody part of Kingston Township and part of Pittsburgh Township amounting to 14,600 in additional population and giving a total of 73,700 for the entire urban area for 1971.

APPENDIX C
(continued)

TOWNSHIPS AND CENTRES	1961	1971	1986		2001	
			ASSUMPTION "A"	ASSUMPTION "B"	ASSUMPTION "A"	ASSUMPTION "B"
HASTINGS COUNTY						
ALL TOWNSHIPS	37,500	37,500	43,600	40,400	48,600	44,900
BELLEVILLE C.	30,700	35,100	42,400	39,200	48,400	44,900
DESERONTO T.	1,800	1,900	2,200	2,100	2,500	2,300
TRENTON T.[1]	13,200	14,600	17,600	16,400	20,200	18,800
BANCROFT V.	2,600	2,300	2,600	2,400	2,800	2,500
FRANKFORD V.	1,600	1,900	2,100	2,000	2,300	2,100
MADOC V.	1,300	1,300	1,500	1,400	1,700	1,500
MARMORA V.	1,400	1,300	1,500	1,400	1,700	1,500
STIRLING V.	1,300	1,500	1,800	1,700	2,000	1,800
TWEED V.	1,800	1,700	2,000	1,900	2,200	2,000
DELORO V.	200	300	300	300	300	300
TOTAL	93,400	99,400	117,600	109,200	132,700	122,500
LANARK COUNTY						
ALL TOWNSHIPS	16,400	17,600	18,200	18,100	18,600	18,300
ALMONTE T.	3,300	3,700	4,000	4,000	4,300	4,100
CARLETON PLACE T.	4,800	5,000	5,300	5,300	5,300	5,300
PERTH T.	5,300	5,500	5,800	5,800	5,800	5,800
SMITH FALLS T.	9,600	9,600	9,800	9,800	9,900	9,900
LANARK V.	900	900	900	900	900	900
TOTAL	40,300	42,300	44,000	43,900	44,800	44,300

[1] If the entire Trenton urban complex is considered, it should include part of Sidney Township amounting to an additional population of 5,500 in 1971 and giving a total 20,100 for the entire urban area.

The Town of Trenton annexed part of Murray Township (Northumberland County) in 1964 and 1968.

APPENDIX C
(continued)

TOWNSHIPS AND CENTRES	1961	1971	1986		2001	
			ASSUMPTION "A"	ASSUMPTION "B"	ASSUMPTION "A"	ASSUMPTION "B"
LEEDS COUNTY						
ALL TOWNSHIPS	22,000	23,100	23,600	23,100	23,500	23,800
BROCKVILLE C.	17,700	19,800	20,800	20,300	21,000	21,300
GANANOQUE T.	5,000	5,200	5,400	5,300	5,300	5,400
ATHENS V.	1,000	1,100	1,100	1,100	1,100	1,100
ALL OTHER VILLAGES	1,000	900	900	900	900	800
TOTAL	46,900	50,100	51,800	50,700	51,800	52,400
LENNOX AND ADDINGTON COUNTY						
ALL TOWNSHIPS	17,900	22,300	27,400	29,600	33,000	35,900
NAPANEE T.	4,500	4,600	5,100	5,600	5,700	6,200
ALL VILLAGES	1,300	1,400	1,800	1,900	2,000	2,200
TOTAL	23,700	28,300	34,300	37,100	40,700	44,300
REGIONAL MUNICIPALITY OF OTTAWA-CARLETON						
ALL TOWNSHIPS[1]	22,800	39,100	51,900	48,800	66,400	59,000
OTTAWA C.[2]	332,900	428,700	590,500	557,300	737,300	680,800
*RICHMOND V.	1,200	2,100	3,300	3,100	4,100	3,800
*STITTSVILLE V.	1,500	2,000	3,200	2,900	4,000	3,600
TOTAL	358,400	471,900	648,900	612,100	811,800	747,200

1 Includes Cumberland Township in 1961 to be comparable with 1971 data.

2 Refers to the urbanized core of the Census Metropolitan Area of Ottawa, which includes the City of Ottawa, City of Vanier, Village of Rockcliffe Park, the entire Townships of Gloucester and Nepean.

* These centres are all defined as part of the Ottawa CMA.

APPENDIX C
(continued)

TOWNSHIPS AND CENTRES	1961	1971	1986		2001	
			ASSUMPTION "A"	ASSUMPTION "B"	ASSUMPTION "A"	ASSUMPTION "B"
PRESCOTT COUNTY						
ALL TOWNSHIPS	14,400	12,700	14,000	13,700	14,800	14,200
HAWKESBURY T.	8,700	9,300	10,200	10,000	10,800	10,400
VANLEEK HILL T.	1,700	1,700	1,800	1,800	1,900	1,800
ALFRED V.	1,200	1,200	1,300	1,300	1,400	1,300
L'ORIGNAL V.	1,200	1,400	1,900	1,600	2,200	1,700
ALL OTHER VILLAGES		1,500	1,600	1,800	1,600	2,000
TOTAL	27,200	27,800	30,800	30,200	32,700	31,400
PRINCE EDWARD COUNTY						
ALL TOWNSHIPS	14,400	14,000	13,100	13,200	11,600	11,900
PICTION T.	4,800	4,900	4,600	4,600	4,100	4,100
ALL VILLAGES	1,900	1,700	1,600	1,700	1,400	1,500
TOTAL	21,100	20,600	19,300	19,500	17,100	17,500
RENFREW COUNTY						
ALL TOWNSHIPS	41,500	41,000	45,800	42,000	49,900	42,800
PEMBROKE C.	16,800	16,500	18,300	16,800	19,700	16,900
ARNPRIOR T.	5,500	6,000	7,000	6,400	7,800	6,700
DEEP RIVER T.	5,400	5,700	6,600	6,000	7,500	6,400
RENFREW T.	8,900	9,200	10,200	9,400	11,200	9,600
BARRY'S BAY V.	1,400	1,400	1,500	1,400	1,600	1,400
CHALK RIVER V.	1,100	1,100	1,200	1,100	1,300	1,100
EGANVILLE V.	1,600	1,400	1,400	1,300	1,500	1,300
PETAWAWA V.	4,500	5,800	7,300	6,700	8,100	6,900
ALL OTHER VILLAGES	2,900	2,800	3,100	2,900	3,400	2,900
TOTAL	89,600	90,900	102,400	94,000	112,000	96,000

APPENDIX C
(continued)

TOWNSHIPS AND CENTRES	1961	1971	1986		2001	
			ASSUMPTION "A"	ASSUMPTION "B"	ASSUMPTION "A"	ASSUMPTION "B"
RUSSELL COUNTY						
ALL TOWNSHIPS[1]	11,100	11,300	13,800	12,200	13,700	12,500
ROCKLAND T.	3,000	3,700	4,500	4,000	5,300	4,100
CASSELMAN V.	1,300	1,300	1,500	1,400	2,000	1,500
TOTAL	15,400	16,300	19,800	17,600	21,000	18,100
STORMONT COUNTY						
ALL TOWNSHIPS	13,900	13,800	14,900	14,400	15,400	14,300
CORNWALL C.	43,600	47,100	52,000	49,700	54,500	50,600
FINCH V.	400	400	400	300	400	300
TOTAL	57,900	61,300	67,300	64,400	70,300	65,200

[1] Excludes Cumberland Township in 1961 to be comparable to 1971 figures.

APPENDIX D

POPULATION PROJECTIONS BY DISTRICTS,
NORTHEASTERN ONTARIO PLANNING REGION, 1986 - 2001

DISTRICTS	1961	1971	1986		2001	
			ASSUMPTION "A"	ASSUMPTION "B"	ASSUMPTION "A"	ASSUMPTION "B"
ALGOMA	111,400	121,900	152,100	not available	180,400	not available
COCHRANE	95,700	95,800	97,200		93,000	
MANITOULIN	11,200	10,900	11,700		12,500	
NIPISSING	70,600	78,900	93,100		105,000	
PARRY SOUND	29,600	30,200	35,500		41,700	
SUDBURY	165,800	198,100	272,500		345,500	
TIMISKAMING	51,000	46,500	46,200		42,800	
TOTAL	535,300	582,300	708,300	663,600	821,100	669,800

APPENDIX D
(continued)

POPULATION PROJECTIONS BY DISTRICTS,
NORTHWESTERN ONTARIO PLANNING REGION, 1986 - 2001

DISTRICTS	1961	1971	1986		2001	
			ASSUMPTION "A"	ASSUMPTION "B"	ASSUMPTION "A"	ASSUMPTION "B"
KENORA	51,500	53,200	52,800	not available	49,600	not available
RAINY RIVER	26,500	25,800	22,300		16,900	
THUNDER BAY	138,500	145,400	158,200		164,400	
TOTAL	216,500	224,400	233,300	263,000	230,900	273,600

APPENDIX E

PROPORTION OF COLUC'S COUNTIES POPULATION
BASED ON TREND AND ALLOCATION AS A PERCENT OF
COLUC TOTAL, 1986 AND 2001

COUNTIES	1986			2001		
	TRENDS	ALLOCATION R_A SERIES	ALLOCATION R_B SERIES	TRENDS	ALLOCATION R_A SERIES	ALLOCATION R_B SERIES
DURHAM AND ONTARIO	7.7	11.8	9.1	8.1	14.9	12.6
WENTWORTH	10.4	10.7	12.1	9.1	12.0	12.0
HALTON	7.2	5.5	6.8	8.5	5.9	8.4
PEEL	12.4	9.2	11.5	16.3	12.6	13.3
YORK/METRO TORONTO	62.3	62.8	60.5	58.0	54.6	53.7
COLUC	100.0	100.0	100.0	100.0	100.0	100.0

APPENDIX F

POPULATION BY MAJOR AGE GROUPS, ONTARIO,
1941, 1956, 1971, 1986 AND 2001

MAJOR AGE GROUPS	1941	1956	1971	1986	2001
0 - 4	297,900	628,900	637,300	847,600	821,100
5 - 19	965,300	1,336,400	2,284,700	2,227,400	2,626,100
20 - 24	324,100	365,200	674,100	840,000	864,100
25 - 44	1,120,900	1,608,000	1,988,200	3,090,000	3,477,800
45 - 64	778,100	1,012,100	1,474,600	1,845,200	2,632,200
65 AND OVER	301,300	454,400	644,400	888,700	1,187,800
TOTAL	3,787,600	5,405,000	7,703,300	9,738,900	11,609,100

APPENDIX G (1)

POPULATION BY MAJOR AGE GROUP, ASSUMPTION "A" PROJECTION, CENTRAL ONTARIO REGION, SIX COLUC COUNTIES, WATERLOO COUNTY AND REST OF THE CENTRAL ONTARIO REGION 1941, 1971, 1986 AND 2001

CENTRAL ONTARIO REGION

AGE GROUPS	1941	1971	1986	2001
0 - 4	131,700	373,000	512,900	520,900
5 - 19	462,800	1,293,400	1,378,000	1,643,600
20 - 24	163,200	404,700	509,800	545,400
25 - 44	586,300	1,230,300	1,936,400	2,221,900
45 - 64	421,600	876,000	1,187,000	1,707,500
65 and over	152,000	370,700	548,100	774,700
TOTAL	1,917,600	4,548,100	6,072,200	7,414,000

SIX COLUC COUNTIES*

AGE GROUPS	1941	1971	1986	2001
0 - 4	83,600	273,300	364,300	376,500
5 - 19	304,900	926,800	999,400	1,177,900
20 - 24	111,700	305,300	364,200	394,900
25 - 44	414,400	942,800	1,416,600	1,624,400
45 - 64	297,300	641,900	886,800	1,263,900
65 and over	97,200	257,400	385,800	569,600
TOTAL	1,309,100	3,347,500	4,417,100	5,407,200

* The six COLUC counties are Wentworth, Halton, Peel, Metro Toronto/York, Ontario, and Durham.

APPENDIX G (1)
(Continued)

POPULATION BY MAJOR AGE GROUPS, ASSUMPTION "A" PROJECTION, CENTRAL ONTARIO REGION, SIX COLUC COUNTIES, WATERLOO COUNTY AND REST OF THE CENTRAL ONTARIO REGION 1941, 1971, 1986 AND 2001

WATERLOO COUNTY*

AGE GROUPS	1941	1971	1986	2001
0 - 4	7,400	23,500	33,700	37,800
5 - 19	25,500	74,900	90,700	113,200
20 - 24	9,300	25,000	31,000	36,900
25 - 44	29,700	66,600	117,500	142,400
45 - 64	19,100	44,800	64,500	106,900
65 and over	8,800	19,200	28,900	43,600
TOTAL	99,800	254,000	366,300	480,800

REST OF CENTRAL ONTARIO REGION

AGE GROUPS	1941	1971	1986	2001
0 - 4	40,600	76,300	114,900	106,700
5 - 19	132,400	291,600	287,900	352,500
20 - 24	42,200	74,400	114,600	113,600
25 - 44	142,200	220,900	402,300	455,100
45 - 64	105,200	189,300	235,700	336,600
65 and over	46,000	94,000	133,400	161,500
TOTAL	508,600	946,500	1,288,700	1,526,000

* Includes the Kitchener/Waterloo Metropolitan Area.

APPENDIX G (2)

POPULATION BY MAJOR AGE GROUPS, ASSUMPTION "A" PROJECTION, EASTERN ONTARIO REGION, OTTAWA-CARLETON COUNTY AND REST OF EASTERN ONTARIO REGION, 1941, 1971, 1986 AND 2001

EASTERN ONTARIO REGION

AGE GROUP	1941	1971	1986	2001
0 - 4	52,100	83,700	114,800	102,600
5 - 19	165,000	332,700	292,800	341,100
20 - 24	54,500	93,700	115,300	113,500
25 - 44	171,000	263,400	424,000	455,600
45 - 64	116,700	206,100	240,800	349,100
65 and over	53,900	91,400	124,700	156,700
TOTAL	613,200	1,071,000	1,312,400	1,518,600

OTTAWA/CARLETON COUNTY

AGE GROUP	1941	1971	1986	2001
0 - 4	15,800	36,500	54,200	54,200
5 - 19	52,000	141,200	145,400	174,400
20 - 24	20,451	45,800	54,400	60,400
25 - 44	63,200	124,600	217,100	245,700
45 - 64	40,400	90,600	121,400	192,900
65 and over	14,600	33,300	56,400	81,700
TOTAL	206,400	472,000	648,900	809,300

APPENDIX C (2)
(continued)

POPULATION BY MAJOR AGE GROUPS, ASSUMPTION "A" PROJECTION, EASTERN ONTARIO REGION, OTTAWA-CARLETON COUNTY AND REST OF EASTERN ONTARIO REGION, 1941, 1971, 1986 AND 2001

REST OF EASTERN ONTARIO REGION

AGE GROUP	1941	1971	1986	2001
0 - 4	36,300	47,200	60,600	48,400
5 - 19	113,000	191,500	147,400	166,700
20 - 24	34,000	47,900	60,900	53,100
25 - 44	107,900	138,800	206,900	209,900
45 - 64	76,300	115,500	119,400	156,200
65 and over	39,400	58,200	68,300	75,000
TOTAL	407,000	599,100	663,500	709,400

APPENDIX G (3)

POPULATION BY MAJOR AGE GROUPS, ASSUMPTION "A" PROJECTION, SOUTHWESTERN ONTARIO REGION, MIDDLESEX COUNTY, ESSEX COUNTY AND REST OF SOUTHWESTERN ONTARIO REGION, 1941, 1971, 1986 AND 2001

SOUTHWESTERN ONTARIO

AGE GROUP	1941	1971	1986	2001
0 - 4	57,300	97,900	129,000	120,400
5 - 19	181,500	357,300	329,200	388,900
20 - 24	57,500	98,600	126,000	125,300
25 - 44	198,600	278,400	441,200	491,500
45 - 64	143,500	229,500	257,000	364,500
65 and over	69,700	118,800	143,900	171,000
TOTAL	714,100	1,180,500	1,426,300	1,661,600

MIDDLESEX COUNTY

AGE GROUP	1941	1971	1986	2001
0 - 4	9,100	23,300	29,600	28,900
5 - 19	28,400	82,300	82,400	93,800
20 - 24	10,700	26,500	31,400	31,800
25 - 44	36,900	72,200	116,400	131,300
45 - 64	28,700	53,500	68,100	103,100
65 and over	13,300	24,300	33,900	46,200
TOTAL	127,100	282,100	361,800	435,100

APPENDIX G (3)
(continued)

POPULATION BY MAJOR AGE GROUPS, ASSUMPTION "A" PROJECTION, SOUTHWESTERN ONTARIO REGION, MIDDLESEX COUNTY, ESSEX COUNTY AND REST OF SOUTHWESTERN ONTARIO REGION, 1941, 1971, 1986 AND 2001

ESSEX COUNTY

AGE GROUP	1941	1971	1986	2001
0 - 4	14,800	26,500	38,900	40,000
5 - 19	49,000	92,800	97,500	120,900
20 - 24	15,200	26,800	34,000	38,600
25 - 44	51,600	73,500	121,200	141,200
45 - 64	33,700	57,400	68,600	101,600
65 and over	10,000	29,400	35,700	45,200
TOTAL	174,300	306,400	395,900	487,500

REST OF SOUTHWESTERN ONTARIO REGION

AGE GROUP	1941	1971	1986	2001
0 - 4	33,400	48,100	60,500	51,500
5 - 19	104,100	182,200	149,300	174,200
20 - 24	31,600	45,300	60,600	54,900
25 - 44	110,100	132,800	203,500	219,000
45 - 64	87,000	118,600	120,300	159,800
65 and over	46,400	65,200	74,300	79,500
TOTAL	412,600	592,200	668,500	738,900

APPENDIX G (4)

POPULATION BY MAJOR AGE GROUPS, ASSUMPTION "A" PROJECTION, NORTHERN ONTARIO REGION, 1941, 1971, 1986 AND 2001

NORTHERN ONTARIO REGION

AGE GROUP	1941	1971	1986	2001
0 - 4	52,600	74,900	95,500	82,700
5 - 19	142,400	272,500	229,500	267,800
20 - 24	43,900	68,900	89,000	82,200
25 - 44	148,700	193,600	289,400	310,200
45 - 64	78,200	142,900	161,700	213,700
65 and over	20,800	54,000	76,500	95,300
TOTAL	486,100	806,800	941,600	1,051,900

APPENDIX H (1)

POPULATION BY MAJOR AGE GROUP, ASSUMPTION "B" PROJECTION, CENTRAL ONTARIO REGION, SIX COLUC COUNTIES, WATERLOO COUNTY AND REST OF THE CENTRAL ONTARIO REGION 1971, 1986, AND 2001

CENTRAL ONTARIO REGION

AGE GROUPS	1971	1986	2001
0 - 4	371,000	524,800	547,700
5 - 19	1,293,300	1,403,700	1,707,800
20 - 24	404,700	522,300	568,700
25 - 44	1,230,300	1,976,900	2,323,800
45 - 64	876,000	1,208,800	1,790,200
65 and over	370,600	557,100	807,100
TOTAL	4,546,100	6,193,600	7,745,300

SIX COLUC COUNTIES

AGE GROUPS	1971	1986	2001
0 - 4	273,300	380,500	411,700
5 - 19	926,800	1,036,000	1,258,700
20 - 24	305,300	380,500	429,400
25 - 44	942,800	1,471,400	1,776,400
45 - 64	641,900	916,800	1,382,200
65 and over	257,400	398,800	623,500
TOTAL	3,347,500	4,584,000	5,881,900

* The six COLUC counties are Wentworth, Halton, Peel, Metro Toronto/York, Ontario and Durham.

APPENDIX H (1)
(continued)

POPULATION BY MAJOR AGE GROUP, ASSUMPTION "B" PROJECTION, CENTRAL ONTARIO REGION, SIX COLUC COUNTIES, WATERLOO COUNTY AND REST OF THE CENTRAL ONTARIO REGION 1971, 1986 AND 2001

WATERLOO COUNTY

AGE GROUPS	1971	1986	2001
0 - 4	23,500	33,500	35,900
5 - 19	74,900	90,100	106,700
20 - 24	25,000	31,000	35,000
25 - 44	66,600	117,100	134,500
45 - 64	44,800	64,200	100,800
65 and over	19,200	28,800	41,300
TOTAL	254,000	364,700	454,200

REST OF CENTRAL ONTARIO REGION

AGE GROUPS	1971	1986	2001
0 - 4	74,300	110,800	100,100
5 - 19	291,600	277,600	342,400
20 - 24	74,400	110,800	104,300
25 - 44	220,900	388,400	412,900
45 - 64	189,300	227,800	307,200
65 and over	94,000	129,500	142,300
TOTAL	946,500	1,244,900	1,409,200

APPENDIX H (2)

POPULATION BY MAJOR AGE GROUPS, ASSUMPTION "B" PROJECTION, EASTERN ONTARIO REGION, OTTAWA-CARLETON COUNTY AND REST OF EASTERN ONTARIO REGION, 1971, 1986 AND 2001

EASTERN ONTARIO REGION

AGE GROUPS	1971	1986	2001
0 - 4	83,700	109,600	98,300
5 - 19	332,700	280,500	325,700
20 - 24	93,700	110,800	106,300
25 - 44	263,400	406,700	426,400
45 - 64	206,100	230,800	326,000
65 and over	91,500	119,800	144,100
TOTAL	1,071,000	1,258,200	1,426,800

OTTAWA/CARLETON

AGE GROUPS	1971	1986	2001
0 - 4	36,500	50,800	50,000
5 - 19	141,200	137,100	160,600
20 - 24	45,800	51,400	56,000
25 - 44	124,600	205,000	227,300
45 - 64	90,600	114,500	177,800
65 and over	33,300	53,300	75,500
TOTAL	472,000	612,100	747,200

APPENDIX H (2)
(continued)

POPULATION BY MAJOR AGE GROUPS, ASSUMPTION "B" PROJECTION, EASTERN ONTARIO REGION, OTTAWA-CARLETON COUNTY AND REST OF EASTERN ONTARIO REGION, 1971, 1986 AND 2001

REST OF EASTERN ONTARIO REGION

AGE GROUPS	1971	1986	2001
0 - 4	47,200	58,800	48,300
5 - 19	191,500	143,400	165,100
20 - 24	47,900	59,400	50,300
25 - 44	138,800	201,700	199,100
45 - 64	115,500	116,300	148,200
65 and over	58,200	66,500	68,600
TOTAL	599,100	646,100	679,600

APPENDIX H (3)

POPULATION BY MAJOR AGE GROUPS, ASSUMPTION "B" PROJECTION, SOUTHWESTERN ONTARIO REGION, MIDDLESEX COUNTY, ESSEX COUNTY AND REST OF SOUTHWESTERN ONTARIO REGION, 1971, 1986 AND 2001

SOUTHWESTERN ONTARIO

AGE GROUPS	1971	1986	2001
0 - 4	97,900	124,500	110,400
5 - 19	357,300	316,800	357,000
20 - 24	98,600	121,500	114,900
25 - 44	278,500	425,300	453,500
45 - 64	229,500	248,200	336,900
65 and over	115,900	139,000	158,900
TOTAL	1,177,700	1,375,300	1,531,600

MIDDLESEX COUNTY

AGE GROUPS	1971	1986	2001
0 - 4	23,300	28,700	28,100
5 - 19	82,300	79,900	91,400
20 - 24	26,500	30,100	31,000
25 - 44	72,200	112,900	128,400
45 - 64	53,500	65,900	100,700
65 and over	24,300	32,900	45,500
TOTAL	282,100	350,400	425,100

APPENDIX H (3)
(continued)

POPULATION BY MAJOR AGE GROUPS, ASSUMPTION "B" PROJECTION, SOUTHWESTERN ONTARIO REGION, MIDDLESEX COUNTY, ESSEX COUNTY AND REST OF SOUTHWESTERN ONTARIO REGION, 1971, 1986 AND 2001

ESSEX COUNTY

AGE GROUPS	1971	1986	2001
0 - 4	26,500	35,900	33,400
5 - 19	92,800	90,100	100,700
20 - 24	26,800	31,500	32,200
25 - 44	73,500	112,100	118,200
45 - 64	57,400	63,800	85,200
65 and over	29,400	33,000	37,900
TOTAL	306,400	366,400	407,600

REST OF SOUTHWESTERN ONTARIO REGION

AGE GROUPS	1971	1986	2001
0 - 4	48,100	59,900	48,900
5 - 19	182,200	146,800	164,900
20 - 24	45,300	59,900	51,700
25 - 44	132,800	200,300	206,900
45 - 64	118,600	118,500	151,000
65 and over	62,200	73,100	75,500
TOTAL	589,200	658,500	698,900

APPENDIX H (4)

POPULATION BY MAJOR AGE GROUPS, ASSUMPTION "B"
PROJECTION, NORTHERN ONTARIO REGION,
1971, 1986 AND 2001

NORTHERN ONTARIO REGION

AGE GROUPS	1971	1986	2001
0 - 4	74,900	93,600	67,000
5 - 19	272,500	226,100	213,200
20 - 24	68,900	88,000	69,800
25 - 44	193,600	284,500	283,000
45 - 64	142,900	159,400	214,200
65 and over	54,000	75,000	96,200
TOTAL	806,800	926,600	943,400

APPENDIX I

LABOUR FORCE PARTICIPATION RATES,
ONTARIO, 1956 to 2001

AGE GROUP	PARTICIPATION RATES (%)						
	1956*	1961*	1966*	1971*	1974*	1986**	2001***
MALES							
14 - 24	70.3	63.2	60.3	60.0	64.7	64.0	67.0
25 - 34	98.8	98.8	98.0	97.1	96.8	96.7	96.7
35 - 44			98.7	98.0	98.2	97.9	98.0
45 - 54	78.0	76.5	97.7	96.5	95.8	96.2	96.2
55 +			60.3	55.5	52.5	58.0	60.0
TOTAL	85.4	83.2	81.0	78.7	79.4	81.4	82.8
FEMALES							
14 - 24	43.1	41.1	42.5	47.2	52.3	62.0	65.0
25 - 34	30.3	33.8	36.6	44.3	50.2	62.5	66.5
35 - 44			41.1	46.2	52.0	64.4	68.5
45 - 54	19.5	25.0	42.8	45.5	49.8	67.6	72.5
55 +			17.5	24.3	17.4	15.3	14.0
TOTAL	28.5	31.7	35.1	40.6	42.9	51.2	53.7
GRAND TOTAL (MALE AND FEMALE)	57	57	58	59	61	66	68

SOURCES: * Statistics Canada, the Labour Force Surveys, 1953, 1961 and 1971.

** Policy Planning Branch, Ministry of Treasury, Economics and Intergovernmental Affairs, Ontario.

*** Regional Planning Branch, Ministry of Treasury, Economics and Intergovernmental Affairs, Ontario. (Estimated on the basis of total participation rates developed by the Policy Planning Branch.

NOTE: The projected labour force prepared by Lithwick and System Research Group (SRG) are as follows:

	MALE	FEMALE
1971	79.0	36.9
1981	79.3	41.3
1991	80.0	44.3
2001	79.8	48.7

The general, the Lithwick and the SRG estimates are considered to be on the low side as can be seen from their projected 1971 figures vis-a-vis the actual ones.

APPENDIX J (1)

ESTIMATED LABOUR FORCE (MALE AND FEMALE) AND PARTICIPATION RATES BY MAJOR METROPOLITAN AREAS AND OTHER PARTS OF THE PROVINCE, BASED ON ASSUMPTION "A" POPULATION PROJECTION 1971 , 1986 AND 2001

AREA	LABOUR FORCE (a)			POPULATION AGE 15 AND OVER (b)			PARTICIPATION RATES (a/b)		
	1971**	1986	2001	1971	1986	2001	1971	1986	2001
COLUC COUNTIES (TORONTO/HAMILTON)*	1,498,600	2,318,100	2,977,100	2,430,800	3,488,900	4,250,800	62	69	70
WATERLOO COUNTY (KITCHENER/ WATERLOO)	113,100	191,700	267,200	179,300	269,600	367,300	63	71	73
REST OF CENTRAL ONTARIO REGION	419,400	606,600	768,400	742,300	975,800	1,188,600	57	62	65
OTTAWA/CARLETON (OTTAWA)	205,700	336,000	446,200	339,300	492,400	641,200	61	68	70
REST OF EASTERN ONTARIO REGION	231,200	302,500	346,400	421,900	501,200	552,700	55	60	63
MIDDLESEX (LONDON)	122,500	186,600	238,500	202,200	276,000	344,600	61	68	69
ESSEX (WINDSOR)	121,200	178,900	236,800	216,400	288,000	367,400	56	62	64
REST OF SOUTHWESTERN ONTARIO REGION	240,400	316,100	374,500	420,400	506,800	573,600	57	62	65
NORTHERN ONTARIO REGION	296,900	420,300	500,700	543,400	687,900	792,900	55	61	63
ONTARIO	3,249,000	4,856,800	6,155,800	5,496,000	7,162,200	9,079,100	59	68	68

* The COLUC Counties are Wentworth, Halton, Peel, Metro Toronto/York, Ontario, and Durham.

** There are two sources of labour force information from Statistics Canada, the Annual Labour Force Survey and the Census. The results from these two sources differ slightly because they were based on slightly different methods of collection. In 1971, the labour force obtained from the Census amount to 3.41 million, which is about 160,000 higher than the figure from the Labour Force Survey. Because the projection was done on the basis of the Labour Force Survey data, the information for the individual areas which was obtained from the Census was adjusted accordingly to correspond with the results from the Labour Force Survey.

APPENDIX J (2)

ESTIMATED LABOUR FORCE (MALE AND FEMALE) AND PARTICIPATION RATES BY MAJOR METROPOLITAN AREAS AND OTHER PARTS OF THE PROVINCE, BASED ON ASSUMPTION "B" POPULATION PROJECTION 1971, 1986 AND 2001

AREA	LABOUR FORCE (a)			POPULATION AGE 15 AND OVER (b)			PARTICIPATION RATES (a/b)		
	1971	1986	2001	1971	1986	2001	1971	1986	2001
COLUC COUNTIES (TORONTO/HAMILTON)	1,498,600	2,399,100	3,225,000	2,430,800	3,288,900	4,623,800	62	69	70
WATERLOO COUNTY (KITCHENER/ WATERLOO)	113,100	191,300	251,700	179,300	268,300	347,000	63	71	73
REST OF CENTRAL ONTARIO REGION	419,400	586,300	709,800	742,300	942,600	1,097,800	57	62	65
OTTAWA/CARLETON (OTTAWA)	205,700	317,300	410,600	339,300	464,500	592,000	61	68	69
REST OF EASTERN ONTARIO REGION	231,200	295,000	330,700	421,900	488,000	529,500	55	60	62
MIDDLESEX COUNTY (LONDON)	122,500	181,100	232,100	202,200	267,300	336,700	61	68	69
ESSEX COUNTY (WINDSOR)	121,200	165,900	197,500	216,400	266,500	307,100	56	62	64
REST OF SOUTHWESTERN ONTARIO REGION	240,400	312,700	353,700	420,400	499,100	542,600	57	63	65
NORTHERN ONTARIO REGION	296,900	415,200	447,700	543,400	677,000	711,100	55	61	63
ONTARIO	3,249,000	4,863,900	6,158,800	5,496,000	7,362,200	9,087,600	59	66	68

NOTE: The participation rates shown here should be identical to those in Table 19(A). The slight discrepancies in a few of the areas are due to rounding, since the same participation rates by age and sex, as well as the relative age composition, were assumed to be the same in the calculations.

APPENDIX K

ESTIMATED EMPLOYEES BASED ON ASSUMPTION "X" DENSITY CHANGE,
STELCO INDUSTRIAL PARK, NANTICOKE,
1986, 2001 AND AT CAPACITY

NO. OF EMPLOYEES IN EACH OF THE SPECIFIED 100 ACRES		1st 100 ACRES	2nd 100 ACRES	3rd 100 ACRES	4th 100 ACRES	5th 100 ACRES	6th 100 ACRES	7th 100 ACRES	8th 100 ACRES	9th 100 ACRES	10th 100 ACRES	11th 100 ACRES	12th 100 ACRES	13th 100 ACRES	14th 100 ACRES	15th 100 ACRES	16th 100 ACRES	17th 100 ACRES	18th 100 ACRES	TOTAL
	1986	754	710	659	611	564	516	468	420	373	325									5,400
	2001	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	753	705	657	14,115
	2004 (capacity)	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	14,400

NOTES: [a] Under Assumption "X", the density of the industrial park is expected to increase from 3.25 persons/acre to a maximum of 8 persons/acre with an average rate of development of 100 acres per year up to a total of 1,800 acres.

Occupancy at the industrial park is assumed to begin in 1977.

APPENDIX L

ESTIMATED EMPLOYEES BASED ON ASSUMPTION "Y" DENSITY CHANGE,
STELCO INDUSTRIAL PARK, NANTICOKE,
1986, 2001 AND AT CAPACITY

NO. OF EMPLOYEES IN EACH OF THE SPECIFIED 100 ACRES	1st 100 ACRES	2nd 100 ACRES	3rd 100 ACRES	4th 100 ACRES	5th 100 ACRES	6th 100 ACRES	7th 100 ACRES	8th 100 ACRES	9th 100 ACRES	10th 100 ACRES	11th 100 ACRES	12th 100 ACRES	13th 100 ACRES	14th 100 ACRES	15th 100 ACRES	16th 100 ACRES	17th 100 ACRES	18th 100 ACRES	TOTAL
1986	545	521	496	472	447	423	398	374	349	325									4,350
2001	800	800	800	800	800	800	800	800	786	762	738	714	690	666	642	618	594	569	13,200
2011 (capacity)	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	14,400

NOTE: [b] Under Assumption "Y", the density of the industrial park is expected to increase from 3.25 persons/acre to 5.7 persons/acre in 10 years and is expected to reach a maximum of 8 persons/acre, with an average rate of development of 100 acres per year up to a maximum of 1,800 acres.

Occupancy at the industrial park is assumed to begin in 1977.

APPENDIX M

RATIO OF PRIMARY METAL MANUFACTURING TO ALL OTHER MANUFACTURING INDUSTRIES, HAMILTON CITY AND HALDIMAND - NORFOLK AREA

PLACE/SOURCE	RATIO OF PRIMARY METAL MANUFACTURING INDUSTRIES TO ALL OTHER MANUFACTURING INDUSTRIES		
	1971	1986	2001
HAMILTON CITY*	1:1.38		
HALDIMAND-NORFOLK			
BECHTEL REPORT		1:0.49	
HALDIMAND/NORFOLK STUDY		1:0.32	1:0.43
SECOND STELCO SUBMISSION**		1:0.85 to 1:1.22	1:1.56 to 1:2.13
IBI / PMM ***		1:1.22	
WOODS GORDON		1:1.24	
REGIONAL PLANNING BRANCH****			
ASSUMPTION "X"		1:1.44	1:1.50
ASSUMPTION "Y"		1:1.22	1:1.33

* Derived from Census of Manufacturing, 1971

** For 1984

*** Medium forecast, 1981.

For further descriptions of sources concerning Haldimand-Norfolk, see Table

Primary manufacturing industries in Haldimand-Norfolk refer to mainly the STELCO steel mill but,in Hamilton, include both STELCO and DOFASCO steel mills.

**** For definitions of Assumptions "X" and "Y," see notes to Appendices X and L.

APPENDIX N

BASIC: NON-BASIC RATIOS DERIVED IN ECONOMIC BASE STUDIES

AUTHOR	CITY	DATE	BASIC TO NON- BASIC RATIOS	APPROXIMATE POPULATION (IN MILLIONS)
MATILLA AND THOMPSON*	DETROIT PITTSBURG CLEVELAND	1950 1950 1950	1:2.16 1:2.55 1:2.97	1.8 0.7 0.9
FEDERAL RESERVE BANK OF KANSAS CITY*	WICHITA	1952	1:1.60	0.2
DENVER PLANNING OFFICE*	DENVER	1953	1:1.53	0.4
CALIFORNIA ECONOMIC DEVELOPMENT AGENCY	LOS ANGELES	1961	1:1.80	2.5
GREATER WILMINGTON DEVELOPMENT COUNCIL*	WILMINGTON	1963	1:1.50	0.1
REGIONAL DEVELOPMENT BRANCH, ONTARIO**	NORTHWESTERN ONTARIO PLANNING REGION	1964	1:2.10	0.2

SOURCE: * Isard, W., and Czamanski, S., "Techniques for Estimating Local and Regional Multiplier Effects of Changes In the Level of Major Government Programs", Peace Research Society: Papers, III, Chicago Conference, 1965

** Economic Base Study Survey, Regional Development Branch, Ontario Department of Treasury and Economics, 1964.

APPENDIX O

POPULATION/LABOUR FORCE MULTIPLIERS FOR SELECTED METROPOLITAN AREAS AND OTHER PARTS OF ONTARIO, 1961 AND 2001

AREA	1961			1971		
	POPULATION (All Ages) (a)	LABOUR FORCE (b)	MULTIPLIERS (a/b)	POPULATION (All Ages) (a)	LABOUR FORCE (b)	MULTIPLIERS (a/b)
NORFOLK) - HALDIMAND)	78,700	30,294	2.60	86,800	36,925	2.35
ESSEX (Windsor)	256,800	98,112	2.62	306,400	127,165	2.41
LAMBTON (Sarnia)	102,100	38,032	2.68	114,300	47,925	2.38
MIDDLESEX (London)	221,400	91,322	2.42	282,000	128,745	2.19
WATERLOO (Kitchener/ Waterloo)	176,800	75,127	2.35	254,000	118,815	2.14
WENTWORTH (Hamilton)	348,200	139,737	2.49	401,900	176,200	2.28
COLUC COUNTIES*	2,486,200	1,040,904	2.39	3,347,600	1,573,055	2.13
CENTRAL ONTARIO REGION MINUS COLUC AND WATERLOO	879,700	317,167	2.77	1,043,300	440,340	2.37
ONTARIO	6,236,100	2,404,812	2.59	7,703,000	3,410,825	2.26

* The COLUC Counties are Durham, Ontario, Metro/York, Peel, Halton, and Wentworth.

SOURCE: Statistics Canada.

APPENDIX P

PROJECTED POPULATION/LABOUR FORCE MULTIPLIERS FOR SELECTED METROPOLITAN AREAS AND OTHER PARTS OF ONTARIO, 1986 AND 2001

AREA	1986			2001		
	POPULATION (a)	LABOUR FORCE (b)	MULTIPLIER (a/b)	POPULATION (a)	LABOUR FORCE (b)	MULTIPLIER (a/b)
ESSEX (Windsor)	395,800	178,900	2.21	487,600	236,800	2.06
MIDDLESEX (London)	361,800	186,600	1.94	435,100	238,500	1.82
WATERLOO (Kitchener/ Waterloo)	366,400	191,700	1.91	480,700	267,200	1.80
COLUC COUNTIES	4,417,100	2,318,100	1.91	5,407,000	2,957,500	1.83
CENTRAL ONTARIO REGION MINUS COLUC AND WATERLOO	1,288,700	606,600	2.12	1,525,300	787,700	1.94
ONTARIO	9,752,000	4,856,800	2.01	11,646,000	6,155,800	1.89

NOTE: The population and labour force information is based on the Assumption "A" projection. However, the multiplier will be the same if the Assumption "B" results have been used in the computation.

APPENDIX Q

ESTIMATE OF CONSTRUCTION AND OPERATING MANPOWER REQUIREMENTS, BRUCE HYDRO DEVELOPMENT PROJECT, 1973 TO 1986

YEAR	CONSTRUCTION	OPERATIONS	TOTAL
1973	2,527	1,143	3,670
1974	2,742	1,209	3,951
1975	3,372	1,385	4,757
1976	4,708	1,801	6,509
1977	5,135	2,206	7,419
1978	4,740	2,666	7,406
1979	3,828	2,730	6,558
1980	3,406	2,577	5,983
1981	2,518	2,427	4,945
1982	1,357	2,192	3,549
1983	451	2,075	2,526
1984		1,976	1,976
1985*		1,900	1,900
1986*		1,900	1,900

* The operating staff includes a component called the Manpower Development Group (assumed number of employees: 190)

SOURCE: Ontario Hydro

APPENDIX R: ADDITIONAL CENTRES AFFECTED BY THE NANTICOKE DEVELOPMENT

Burlington, Kitchener, Wateford, Caledonia, Galt, Burlington, Oakville, Dunnville, Cayuga, Delhi, Port Colbourne, London, Lincoln, Niagara Falls, Waterloo, Ingersoll, Guelph, St. Catharines, Welland, Paris, Hespeler, Preston, Ayr, Tillsonburg, Norwich, Stratford, Elmira, Milton, Port Rowan, Norwich, Grimsby, Pelham.

APPENDIX S: ADDITIONAL CENTRES AFFECTED BY THE BRUCE HYDRO DEVELOPMENT

Owen Sound, Goderich, Walkerton, Paisley, Hanover, Wiarton, Wingham, Teeswater, Lucknow, Ripley, Chesley, Durham, Meaford, Clinton, Mildway, Listowel, Mt. Forest, Tara, and Harriston.

APPENDIX T: ADDITIONAL CENTRES AFFECTED BY THE PETROSAR DEVELOPMENT

Courtwright, Wallaceburg, Chatham, and London.

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